AV AUDIO VISUAL COMMUNICATION REVIEW

L. P. Greenhill — New Directions for Communication Research

W. F. Seibert — Comparative Costs for Televised and Conventional Instruction

George Gerbner — Education and the Challenge of Mass Culture

Departments

Film

Current Developments in Communication—The First Year of Title VII

Research Abstracts

Index, Volume VII

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SPECIAL INVITATION

THE RESEARCH Committee of the Department of Audio-Visual Instruction extends an invitation to those who desire to present a paper at its annual meeting to be held during the national convention of the DAVI in Cincinnati, Ohio, February 29 to March 4. These papers should be in written form and require from 20 to 30 minutes to present. The research papers might deal with any phase of the audio-visual field including television. A 600-to-800 word abstract or the original paper must be submitted by December 1. Persons interested in presenting such a paper should communicate with the program chairman listed below.

JOHN A. MOLDSTAD
Audio-Visual Center
Indiana University
Bloomington, Indiana

The Managing Editor wishes to announce that an increase in printing costs has made it necessary to revise our schedule of reprint prices. Beginning with the Winter issue 1960 the following prices will be in effect:

	8 pages pasted	12 pages W. stitched	16 pages W. stitched	Separate covers
50 copies	$29.00	$46.00	$39.00	$8.00
Add'l 50's up to 500	1.65	3.00	2.00	2.75

NEW DIRECTIONS FOR COMMUNICATION RESEARCH

● L. P. GREENHILL

This paper makes suggestions for the improvement of communication research and discusses some new directions such research might take.

L. P. Greenhill is associate director, Division of Academic Research and Services, Pennsylvania State University.

THE WORD *communication* has many aspects.

For the purpose of this presentation I propose to interpret the word *communication* to mean the presentation of auditory and visual stimuli to students in such a way as to encourage them to acquire new information, skills, and attitudes of an academic type. Specifically, I shall be referring principally to the use of television and related techniques for the instruction of college students.

In discussing new directions for research in this area I shall divide my comments into two parts. The first part will deal with suggestions for the improvement of the kinds of research that are currently being undertaken; the second will deal with some new areas and approaches to communications research.

IMPROVED METHODOLOGY

Experimental Designs

Let us turn first to a consideration of the improvement of research methodology—especially the improvement of experimental designs.

Need for randomization. Probably few innovations in education have been subjected to as extensive evaluation as has the use of television. By and large, the experimentation has been of high caliber and of relatively rigorous design as compared with earlier educational experiments. However, in looking over much of the re-

search and in attempting to interpret and evaluate it one cannot help but notice the fact that one of the basic requirements for applying a test of significance has been omitted from many experiments —in other words, the subjects have not been randomly assigned to the several treatments.

Administrative considerations often make it inconvenient to use randomization, and, accordingly, intact groups are used and an attempt is made to "equate" these groups by selecting from them subjects who are equivalent in terms of measures of ability, age, sex, socioeconomic status, or whatever else may appear to be important. These efforts to "equate" self-selected groups are rarely successful and one can never be sure that he has compensated for all the important factors that might bias an experiment by using this method. This process of "equating" groups is even more tenuous when comparisons are made across different schools—that is, when students in School 1 are taught by Method A and those in School 2 by Method B. (We were caught in this trap once, and even after equating for age, sex, and intelligence, the experiment still yielded inconsistent differences which defied interpretation. One conclusion was that the several schools varied greatly in morale—a factor which certainly interacted with the experimental variables.)

One encounters similar problems when attempting to compare different treatments with two intact groups of college students. One finds that students in one section of a course may differ considerably in curriculum background from students in another section of the same course, and that these curriculum differences often reflect different abilities which can seriously upset experimental comparisons.

What I have been trying to do is to stress the imperative need for random assignment of students to experimental treatments in order that any biases affecting the experiment will have an equal opportunity of affecting each method. One is then justified in using a test of significance to ascertain the level of confidence that one can have in the results of the experiment.

Randomization presents little difficulty when the several experimental treatments are given at the same hour, but when the same teacher has to teach by two different methods this usually has to occur at two different hours and this presents a more difficult problem for random assignment. At Penn State we have worked out a technique for randomizing students across class sequences which may be useful to others. Prior to the experiment and during registration for the course, we examine each student's schedule in

order to determine which students can be assigned to either of the two sequences to be taught by the experimental methods. If a student has both sequences open, he is randomly assigned to one of them and is regarded as being in the experiment. Students who do not have both sequences open take the one that they wish, but their scores are not included in the experimental comparison.

To sum up this section, I would like to *argue against:*

- Applying tests of significance to groups which have not been randomly assigned.
- Making comparisons between two different schools when Method A is taught in School 1 and Method B in School 2.
- Making comparisons across two school years or semesters when Method A is taught one year and Method B the next.

Of course, comparisons of the last two types may be made and the results presented in the form of descriptive data without the use of tests of significance, but interpretation is usually difficult.

Where the requirement of randomization has been met, the precision of an experimental comparison can often be increased if one or more tests of ability are administered before the experimental treatments are begun. Such tests can then be used as adjusting variables in an analysis of covariance. However, analysis of covariance is not a substitute for randomization.

Need for more complex designs. Let us now consider a different aspect of methodology. Many of us have given thought to the parade of nonsignificant differences that are emerging from current communication experiments. Nonsignificant differences are particularly typical of the results of comparisons between televised and face-to-face instruction where the same teacher has taught by each method. This finding can, of course, be taken as an indication that television can be successfully used to penetrate the quantity and distance barriers to education, because in most of the comparisons larger numbers have been taught over television than in the comparable face-to-face groups, and those participating in televised instruction have often been located at a distance from their teacher.

However, what we are also looking for is a breakthrough in the *quality* of instruction, and this failure to find significant differences may be a function of the types of experimental designs we are using. In general, these designs involve comparisons between single variables, e.g., TV vs. face-to-face instruction (teacher held constant), large group vs. small group, feedback vs. no feedback, et

cetera. It is quite possible that the effects of most single variables are too small to have any marked influence on learning. In fact, I have had a personal theory for some time that the better the control in single variable experiments, the less likely is one to find significant differences, and that the differences which were often found in early research were frequently the result of inadequate experimental controls!

In the instances where differences have been found in televised instruction, they have usually been between groups taught over television by a carefully selected teacher, and groups taught by other teachers in face-to-face situations. Here we have at least two variables operating and it is impossible to say which is producing the effect.

In such circumstances it would be possible to go to a factorial design in which teacher A teaches by TV and face to face and teacher B does likewise. In this factorial design with two factors and four groups, it would be possible to tell which factor was producing what effect, and whether there is any interaction between the factors. It is therefore conceivable that such relatively complex designs might be used and would yield worthwhile information.

The thought has occurred to my colleagues and myself, however, that what we need is a design in which comparisons would be made between methods involving several variables that are additive in their effects. We have evidence, for example, that repetition of the main ideas in a lesson increases learning, and that certain incentives such as competition increase learning.

What we need then is a design in which patterns of these "positive" variables would be compared. Such a design might be called an "additive" design. In this design the control group would receive the conventional treatment (C). One experimental group would receive this treatment plus, say, some form of repetition (R); a second experimental group would receive repetition plus knowledge of results (K); a third group would receive both (R) and (K), plus some form of social reinforcement (S) in peer group discussions. Such a design would look like this:

TREATMENT	VARIABLES
Control	*Conventional Method* (C)
Experimental 1	C+R
Experimental 2	C+R+K
Experimental 3	C+R+K+S
and so forth	

In such an additive design the preceding treatment would serve as a control for each succeeding one, and the original control group would serve as a base line for comparison of the accumulating patterns of variables.

However, when four or five treatments of this type are in progress, there may be difficulties in having the same teacher teach by each method. At this point television or film recordings can play their part. With closed-circuit television, students in different rooms can be taught by the same teacher at the same time but can be given other differential treatments. Similarly, instruction can be recorded on film and used as a constant stimulus source for several groups whose treatment is varied in other respects.

New Criteria

Let us now turn from the question of designs to the problem of the criteria or tests to be used to evaluate the outcomes of communication research.

One of the criticisms of television research most often heard from the advocates of television is that the tests used to evaluate the televised presentations have been primarily verbal in form and did not therefore adequately test the visualization of concepts that television is so well equipped to present. Undoubtedly there is considerable truth in this point of view. Studies have shown that the effectiveness of a particular method of teaching is to some extent a function of the method of testing. To this extent the use of verbal tests may be biasing the results in favor of a verbal method of presentation.

Television offers unusual opportunities for the presentation of situational tests with pictorial and sound cues that closely approach real-life situations. Thus, lifelike problems can be presented for students' responses in a way that would be almost impossible in the classroom. In fact, this procedure can be carried a stage further and the test problems can be recorded on film for standardized presentation and re-use.

I do not have in mind here the presentation of verbal test items via television although this has been successfully accomplished with great savings in time and the printing of tests. Rather the problems would be more in the nature of laboratory demonstrations from which students would have to deduce the correct solutions. In 1953 The Instructional Film Research Program at Penn State successfully produced such a test on motion picture film for the performance testing of tank mechanics. The test had unusually high reli-

ability. Some beginnings had been made in performance testing via television at Penn State in the courses of Metallurgy, Archeology, and Air Science.

One always has to answer the question whether the performance measured by such test problems is a valid objective of the course of study. Some people claim that the function of most university courses is to develop ability to think in terms of abstract principles, and that verbal tests are the best measure of this particular kind of performance.

The critics of television research frequently assert that the tests used to evaluate the comparative effectiveness of televised and face-to-face instruction are inadequate and test only for recognition of facts. What we really need to do they say is to test for the "intangibles." Pressed to define and defend their view, these critics will usually indicate that by "intangibles" they mean problem-solving behavior, creative thinking, the formation of desirable attitudes, and the like.

Actually, television researchers have gone far beyond most other educational researchers in testing for these types of learning. At Penn State researchers have certainly attempted to build test items which assess a student's ability to apply principles to the solution of problems, or test his ability to interpret data and draw valid conclusions. Penn State also has used such attitudinal tests as the Inventory of Beliefs, the *F* Scale, and the like. Similar special tests have been used by others—particularly at Miami University in Ohio.

On the other hand, it is probably fair to admit that more work is needed on the development of appropriate criteria for educational research, and that we should perhaps think in terms of using multiple criteria for each experiment. My colleagues and I at Penn State have been discussing this problem recently, and a list of criteria for assessing academic achievement has been proposed in order to assess a broader range of educational objectives. Such a list of criteria is as follows:

Criterion	*Assessment Function*
1. Objective multiple-choice items	Recognition of facts, solving problems
2. Essay questions	Integrative abilities
3. Oral examination	Personality traits
4. Term paper	Library research, integration
5. Interview	Academic attitudes and interest
6. Research project	Creativity
7. Laboratory performance	Manipulation skills
8. Election of future courses	Performance over time in future courses

Some of these criteria may be difficult to quantify reliably but they are suggestive of the direction in which evaluation techniques might move.

NEW AREAS FOR RESEARCH

Let me now turn from the subject of improved methodology to a consideration of some new areas for research in the auditory and visual methods of communication with special reference to televised instruction.

New Areas in TV Research

It appears to me that much of the research now under way is repetitious. That is, the same kinds of comparisons are being made over and over again in different places with the same subject matter, and this is especially true of the comparison of televised with face-to-face instruction. Admittedly, some research of this type is necessary for public relations purposes. Many people (especially teachers) just cannot accept the idea that other teachers could possibly be as effective over television as in a face-to-face situation. Also, every once in a while a new subject matter is tried out on television and the effectiveness of this procedure needs to be evaluated to be sure that the use of television is not adversely affecting learning. Such research I refer to as "quality control" research.

I would think that there should be progressively fewer of these TV—face-to-face comparisons, and that in place of such studies we could begin to concentrate on developing more effective ways of using television and to evaluate the relative effectiveness of these different ways.

We might, for example, investigate more thoroughly certain production variables. There is much debate between educators and TV producers as to what makes for effective televised instruction. We need to know what production techniques actually enhance learning, and what ones have no effect or even interfere with it.

We might compare various ways of encouraging overt participation on the part of students during a televised presentation, or we might compare overt with covert participation. If we bear in mind the fact that we are not only teaching *subject matter* but that we are also teaching *students*, many such variables come to mind. For example, we could compare the effectiveness of various kinds of supplementary activities—written themes, discussion sessions, additional reading, and the like. We could compare methods of teaching

students how to learn from televised presentations. At Penn State we are currently conducting a project in which homogeneous grouping of students is being compared with heterogeneous grouping in TV classrooms.

We need to investigate the applicability to TV of some of the variables studied in film research: e.g., black and white vs. color, camera angle (objective vs. subjective), the use of various kinds of repetition, and different rates of development.

We certainly need to get into the delicate area of comparing various instructors on television in order to identify the most effective television teachers or combinations of teachers (teaching teams) and to learn what makes some teachers more effective than others, or whether a team is more effective than a single teacher on television.

We need to find out why there is resistance on the part of faculties to the use of television.

We certainly need to compare recorded presentations (on film or video tape) with live presentations. If research shows them to be effective, the recording of instruction offers enormous possibilities for re-use, and for interchange of high-caliber instructors between institutions and even countries.

Need for Basic Research

However, in many of these comparisons I fear that we may continue to find few significant differences. In this connection, we at Penn State have developed an hypothesis. It is that students in general do not study to learn as much as possible. They study to pass a course or to get a particular grade. Thus, if the teaching in a given course is appreciably improved in some way or another, the students may do less work in that particular course, and concentrate on other courses that are not being taught as well. Thus, this law of "compensatory effort" may make it very difficult to secure differences in effectiveness between varying instructional methods.

This hypothesis, if true, suggests the need for even more basic research on methods of motivating students so that they will tend to put more effort into their academic work. At Penn State we are currently conducting a project which involves regular meetings of students in work-study groups. These activities are intended as supplements to large TV classes. In these groups students not only discuss course-related subjects, do library research, and the like, but they also discuss their roles and responsibilities as students in

a university and study problems of higher education in general. Such activities are intended to influence students' academic motivations by social reinforcement with the object of making scholarship a more respectable and desirable pursuit.

Along this line of basic educational research, studies might be conducted in the area of interactions—interactions between student and student, student and teacher, and student and subject matter. The various reward systems for academic work might be studied and new and effective incentives for academic work developed. In addition, studies of the programming of instruction might yield worthwhile results: studies of order of topics within a lesson, the ordering of lessons in a course, and the ordering of courses in a curriculum.

Finally, some really basic research needs to be conducted which would attempt to develop information about how communication occurs through auditory (verbal and nonverbal) and visual (verbal and nonverbal) methods of communication and what kinds of meaning are communicated in various situations to different types of people by these several modes.

COMPARATIVE COSTS FOR TELEVISED AND CONVENTIONAL INSTRUCTION[1]

• W. F. SEIBERT

This study presents information on comparative instructional costs for televised and conventional instruction. W. F. Seibert is now on leave to the U. S. Office of Education from his post as consultant in television program research, Purdue University.

QUESTIONS concerning the costs of televised formal instruction have arisen perhaps as frequently as, if not more frequently than, questions concerning the effectiveness of such instruction. Together, questions from these areas have provided the material for a majority of the discussions concerning televised instruction. Although many comparative effectiveness studies involving televised and conventional instruction have been reported in recent years and have provided a basis for continuing interest in televised instruction, there has been only limited information on comparative instructional costs.

Kumata's 1956 *Inventory* (2) includes an examination of the available studies of comparative effectiveness and summarizes their findings (p. 5) as follows: "On the whole, television students have done as well as other students and at times somewhat better." Another source of information on comparative effectiveness is the more recent (1958) report from Pennsylvania State University

[1] This article is based on a 1958 mimeographed report (see Research Abstracts in this issue, page 305, for a description of this report). Both are derived largely from experience with a single-campus, university closed-circuit instructional television operation and from familiarity with similar operations. The results are undoubtedly most appropriate to existing or contemplated operations resembling those mentioned.

(1) ; it includes accounts of numerous studies as well as a summary (p. 18) of comparison studies executed at that institution. The summary states, in part: "Controlled experiments which compare direct and televised instruction with the same teachers teaching the comparison groups are unlikely to yield statistically significant differences in students' achievement scores when the courses, teachers and students are similar to those in the Penn State experiments." The comparative cost information presented on pages 101-106 of this latter report is probably the most detailed and most useful of any currently available.

At this point, it seems that sufficient experience with televised formal instruction has accumulated to serve as a basis for some preliminary instructional cost estimates; it will be the purpose of this paper to supply several such estimates and to compare these with corresponding estimates for conventional instruction. In presenting these estimates, it is realized that the costs of formal instruction, whether conventional or televised, might be computed or estimated in many ways and that the procedures adopted for the purposes of this paper represent only one approach to the problem. Estimation procedures and underlying assumptions other than those involved here are not without merit; however, it would seem that present methods represent an acceptable combination of simplicity and realism.

FACTORS CONSIDERED

It is reasonably certain that the most prominent future use of television in higher education will be in the lecture, lecture-demonstration, and/or "recitation" portions of lower division (freshman and sophomore) courses. Since such use has been the most thoroughly explored to date and since it constitutes an area of instructional effort which is large enough to merit special attention, the cost estimates presented here have been prepared as if these were the only kinds of instruction being considered. Therefore, the estimates presented are most applicable to situations which may involve relatively large numbers of students and a 1-to-1 correspondence between student-instructor weekly contact hours and student credit hours.

The basic unit of cost to be considered is the *direct instructional cost per student per semester hour of credit.* For conventional instruction, the only direct cost factor which will be considered is the salary of the instructor. For televised instruction, costs are divided into four areas as follows:

1. Instructor salary
2. Instructor "release time" [2]
3. Costs of establishing, maintaining, and operating the television facilities.
4. Salaries of graduate assistants to supervise classroom groups and aid the principal instructor in such duties as assigning grades, preparing instructional materials, and maintaining records.

Five assumptions have been made which have a bearing upon costs and these are as follows: (a) instructors normally carry a teaching load which is equivalent to 12 class hours per week; (b) a student section or class consists of 30 students; (c) the costs of providing classroom space, heat, light, et cetera are the same for conventional and televised instruction and need not enter into a consideration of the comparative direct costs of these two forms of instruction; (d) a graduate assistant (assumed 10-month salary: $1700) can perform satisfactorily if given two hours of credit against his 20-hour workweek for each hour spent in the direct supervision of a television student section;[3] (e) a semester has a duration of 16 weeks.

Basic unit costs, as estimated here, are dependent upon one factor in the case of conventional instruction and four factors in the case of televised instruction. Estimates have been prepared to include several levels and (for television) all combinations of these cost elements. A brief examination of Figures I-VI will help to clarify the preceding statement. The plotted costs are based on 10-month (two semester) instructor salaries of $6000, $7500, and $9000; they include television instructor "release time" in the ratios of 2 for 1, 3 for 1, and 4 for 1; and they include estimated television facility costs of $20 and $30 per hour of instruction.[4] In addition, basic unit costs for student groups ranging from two sec-

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[2] Currently, few television instructors receive "release time" in a ratio greater than 2 for 1, i.e., two hours of credit against the teaching load for each hour of televised teaching. Available information suggests that at least this much credit can be justified as recognition of the added duties and responsibilities that will fall upon television instructors. Some situations may provide justification for even greater recognition and, with this in mind, two higher "release time" ratios have been included in the prepared cost estimates.

[3] The instructional cost represented in this allowance is probably an upper limit, rather than an average or a minimum cost. Some televised instruction has been and will be effectively executed without direct supervision during television periods; however, even in the absence of direct supervision, it will be frequently necessary or desirable to provide the principal instructors with qualified assistants.

[4] Carpenter and Greenhill (see reference 1, page 101-106) present cost figures for the Penn State closed-circuit television facilities. Amortizing equipment costs over a five-year period, they determined that hourly operating cost was $26.64. This figure corroborates an early rough estimate of $20 to $30 made by J. S. Miles, director of the Purdue University TV Unit.

FIGURE I

INSTRUCTIONAL COST ESTIMATES, TV & CONV'L

SALARY PAID: $6000 TV COSTS: $20 PER HR.

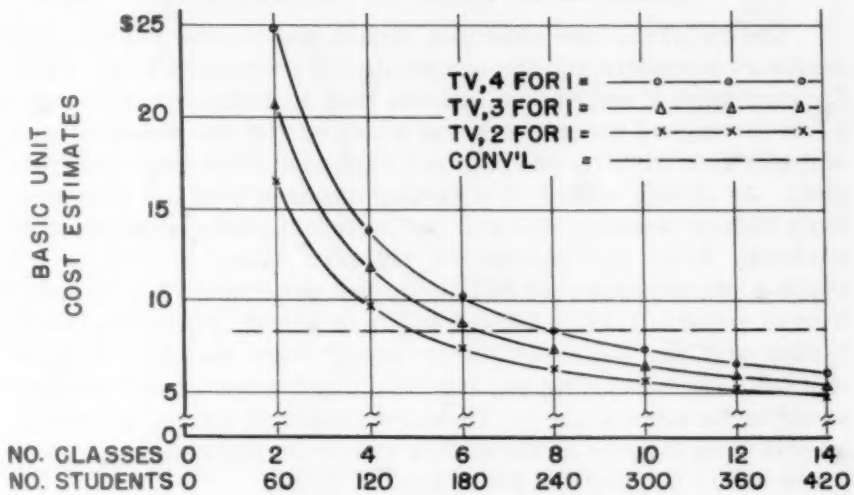
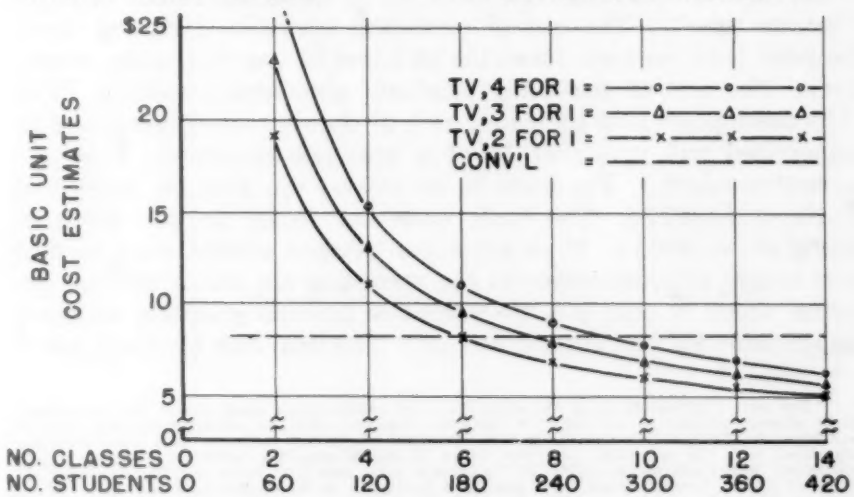


FIGURE II

INSTRUCTIONAL COST ESTIMATES, TV & CONV'L

SALARY PAID: $6000 TV COSTS: $30 PER HR.



tions (60 students) through 14 sections (420 students) are provided.

EXAMPLES OF ESTIMATE COMPUTATIONS

The following two examples should provide the explanations necessary to understand the computational procedures used. First, for conventional instruction, assume that an instructor who earns $7500 is assigned to teach a course which carries one semester hour of credit (and involves one hour per week of student-instructor contact). As already stated, it is further assumed that the instructor has a 12-hour teaching load and that a student section consists of 30 students. Since the instructor's semester salary is half of his $7500 10-month salary, or $3750, the cost per student per semester hour of credit is 1/12 of 1/30 of $3750, or $10.42. If the 30-student section and the $7500 instructor salary were maintained, basic unit costs for instructing any number of additional student sections would be the same as above. These costs could, of course, be lowered by enlarging the size of the section and/or by utilizing instructors whose salary is below the stated level of $7500.

As a second example, involving basic unit costs for televised instruction, assume that an instructor earning $7500 is involved, that the instructor is granted 3 for 1 "release time," that the television facilities cost $30 per hour of instruction, and that there are six student sections to be taught (and supervised by graduate assistants) simultaneously. Instructor cost, including "release time," would be $937.50 (1/12 of $3750 times the factor of 3 for "release time"). The cost of providing television facilities would be $480 ($30 per hour times the 16 hours of use during the semester). The cost of providing graduate assistants would be $510. (As assumption four indicates, each of the six student groups to be supervised will involve 1/10 of a graduate assistant's $850 per semester salary.) The costs to be totaled are $937.50, $480, and $510, or $1927.50. The basic unit cost would be one 180th of $1927.50, or $10.71. If an additional student section were formed and taught simultaneously to the preceding six, the additional expense would be only the $85 needed to provide graduate assistant supervision for this student section.[5] The total cost for these seven

[5] The cost of service given by the added television receiver is so small that it can be assumed to be already present in the costs for facilities. Consider that an adequate receiver may be purchased for $250, that maintenance over five years might cost $100, and that other expenses associated with the set (e.g., pro rata share of coaxial-amplifier network costs, electricity, mounting) might add another $250. If the receiver were used four hours per day, five days per week, 32 weeks (two semesters) per year, and five years, it would give 3200 hours of service. Cost per hour of operation would be less than 19 cents.

FIGURE III

INSTRUCTIONAL COST ESTIMATES, TV & CONV'L

SALARY PAID: $7500 TV COSTS: $20 PER HR.

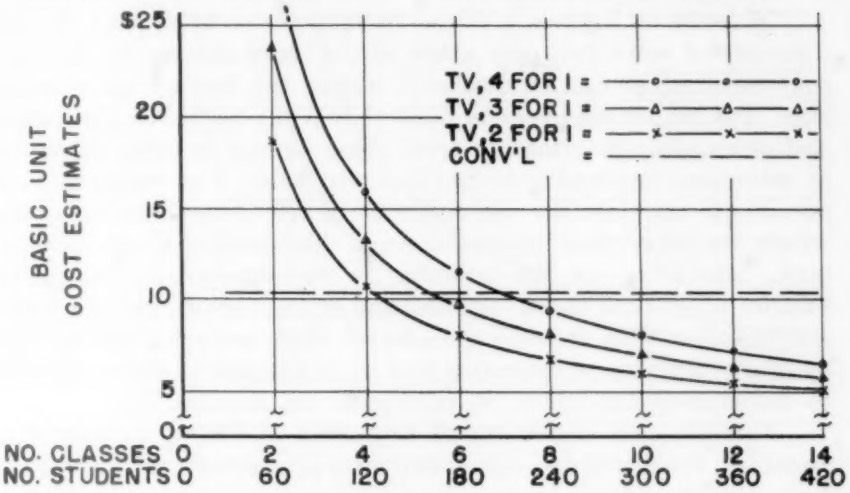
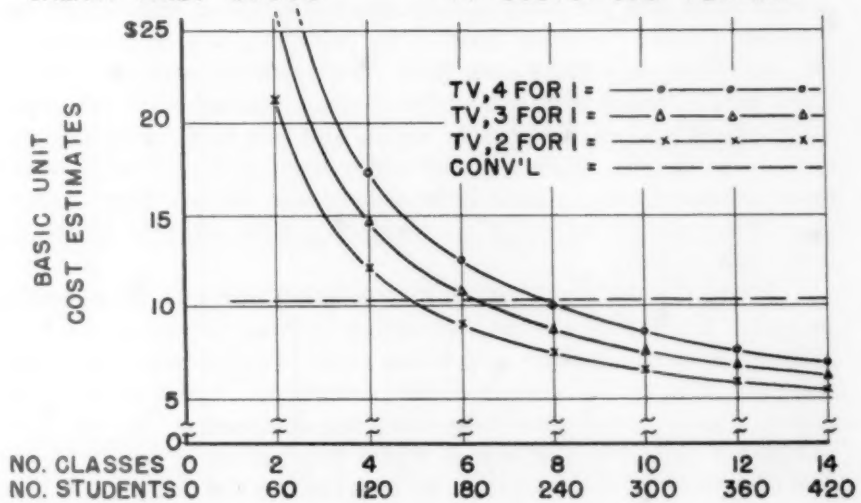


FIGURE IV

INSTRUCTIONAL COST ESTIMATES, TV & CONV'L

SALARY PAID: $7500 TV COSTS: $30 PER HR.



student sections (210 students) would be $2012.50, and the basic unit cost would be $9.58.

DISCUSSION

Material in Figures I-VI can be interpreted or applied in such a variety of ways that only a few of the more obvious or interesting relationships can be discussed within the limited space available. The reader may bear in mind that it is possible to interpolate and extrapolate information from these figures in order to arrive at estimates for conditions not included here. For example, it is possible to estimate the consequences of television facilities' costs which are lower than, intermediate, or higher than those included here. Similarly, one can estimate the consequences of instructor salaries other than those included and of instructor "release time" policies other than the ones considered. Such modifications may be helpful in arriving at estimates that more adequately reflect present or anticipated conditions at individual institutions.

Summarizing the estimates presented in the six figures, it is apparent, first, that the estimated costs of instructing fewer than four student sections by means of television are invariably higher than the estimated costs of providing the instruction conventionally.

It seems important to note that the student enrollment level at which television instructional costs become equal to conventional costs decreases as instructor salary level increases. Consider, for example, the situations in which television facilities' costs are assumed to be $30 per hour and in which television instructors are granted 3 for 1 "release time" (the center curves in Figures II, IV, and VI). It will be seen that, at the $6000 instructor salary level, the televised and conventional instructional costs are equal when there are approximately seven and one-half television sections to be taught. With a $7500 salary level, costs are equal when there are about six sections to be taught and, with a $9000 salary level, the costs are equal at an enrollment level slightly below six television sections.

It can also be seen that an instructional cost advantage might be gained through television instruction in those courses which have large student enrollments and which could provide from 150 to 270 students or more for simultaneous instruction. There is the additional possibility of providing televised instruction by the most competent instructors at a cost which is equal to or less than the cost of conventional instruction as executed by the less highly paid

FIGURE V

INSTRUCTIONAL COST ESTIMATES, TV & CONV'L

SALARY PAID: $9000 TV COSTS: $20 PER HR.

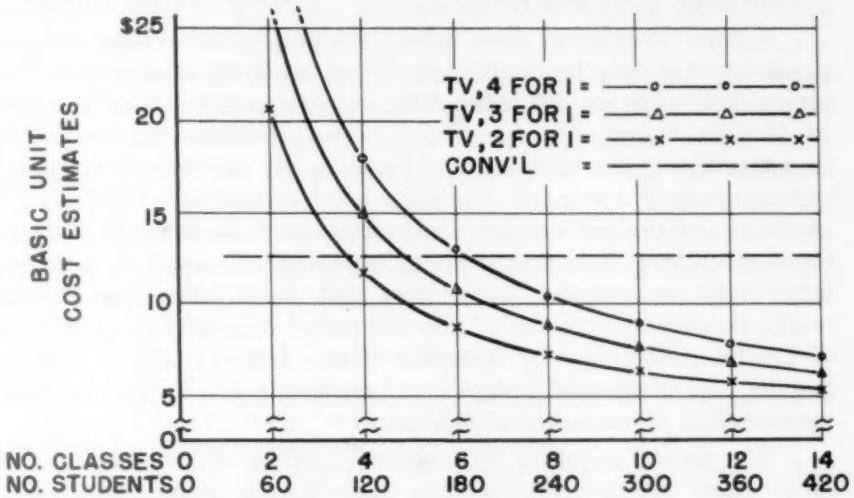
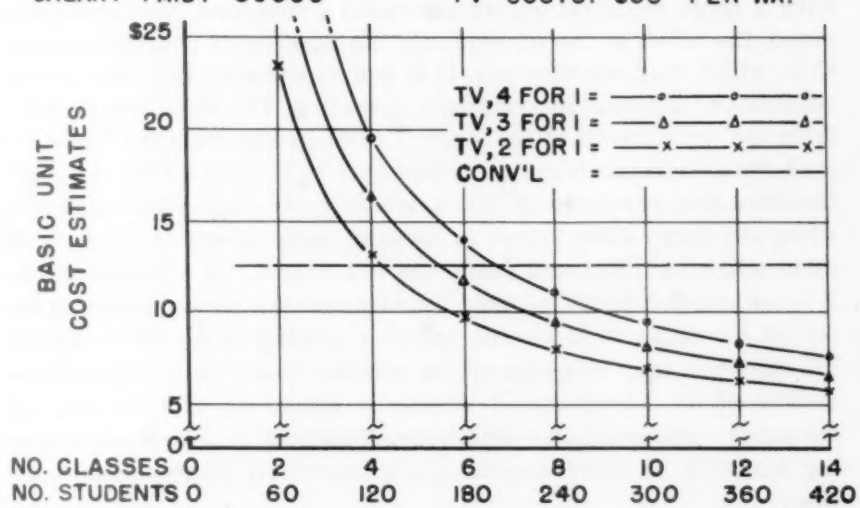


FIGURE VI

INSTRUCTIONAL COST ESTIMATES, TV & CONV'L

SALARY PAID: $9000 TV COSTS: $30 PER HR.



instructors; however, this would also require that sizable student groups were available for simultaneous instruction. As the shortage of well-qualified instructors becomes more acute, this possibility should merit increased consideration.

Before concluding, some additional points concerning instructional costs should be mentioned. First, as mentioned earlier, instructional costs can be reduced by increasing the size of the conventionally taught class or section. This procedure has been used to advantage in the past and will undoubtedly continue in use, providing not only a lowered cost level but increased contact between students and the more capable instructors and scholars. In some of these situations, televised instruction might be used in place of large-class conventional instruction and justification for its use might be either in terms of the unlimited expansion possibilities of the television class or in terms of the demonstrations, models, graphs, and other valid instructional materials which could be made more visible through use of television.

The second point to be mentioned concerns the effects of a large class, whether televised or conventional, upon the over-all efficiency of an instructional operation; this might be called the cost of "mass" (or large-group) scheduling within a flexible schedule of elective curricula. When students are permitted to select their courses, within their curricula, for a given term, the university must frequently provide alternative days and hours during which students may take a given course. If, in the case of a course with a large registration, no alternative days and hours are provided, the effect is one of reducing the number of course combinations which students may select; in some instances, this impairs the efficiency of the total instructional operation. The impairment stems from the withdrawal of the large student group from the "pool" of students and the accompanying tendency to idle for a time the other facilities and resources of the university. During days and hours when the large class is not in session, peak demands of students upon other facilities and resources are raised. In simplest terms, it is not possible to compensate for idleness of a resource during one period by using it to double capacity during some other period. Therefore, it may be necessary in practice to schedule large classes (televised or conventional) during a minimum of two time sequences to preserve some scheduling flexibility and to avoid imposing hardship on other aspects of the university instructional operation.

In conclusion, this report has contained no mention of an item which might have considerable bearing upon instructional costs: this is the possibility of presenting filmed or video tape-recorded lessons on television. There are two primary reasons for ignoring this prospect. First, there does not appear to be sufficient accumulated experience to provide a reasonable basis for estimating the useful life of a "frozen" series of lessons. The length of this useful life will be extremely important in determining costs. Second, many questions concerning the residual rights of an instructor who prepares such a "frozen" series are not yet answered. These questions must be satisfactorily answered through negotiation and the establishment of precedent before they can be treated realistically in a consideration of instructional costs.

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EDUCATION AND THE CHALLENGE OF MASS CULTURE

● GEORGE GERBNER

Here is a perceptive analysis of the challenge of our present popular culture to education and of issues that might be studied in a university course on the social aspects of mass communication. *George Gerbner is associate professor in the Institute of Communications Research, University of Illinois.*

FOR ABOUT the last 10 years, the study of mass communications and popular culture has come to be regarded increasingly as an educational responsibility. Attempts to meet this responsibility resulted in some useful publications. However, they made few inroads into the curriculum, and have scarcely been reflected in the preparation of teachers.

Perhaps the time is ripe to ask in what ways the educational response to the challenge of mass culture might bear fruit in the classroom. Our purpose is to pose this question by sketching the background of educational and scholarly attention, and by describing the assumptions, aims, and ideas guiding one approach to the study of the social aspects of mass communications.

BACKGROUND OF ATTENTION

The lessons of two world wars and the history of the 1930's impressed us with the power of "propaganda." More rigorous study and sober reflection showed, however, that the most potent sources of influence stem from the popular cultural context of a time and place rather than from single messages, campaigns, or personalities.

The myth of one man's "power to mold men's minds" gave way to the conception of a more complex, subtle, and more pervasive role of mass communications and the popular arts in human life.

In that broadened context we attempted to sharpen and deepen our understanding of the cultural sources of our consciousness and actions. "Know thy communications to know thyself," a modern Socrates would have said, probably adding that "the unexamined culture is not worth living in."

Three-fourths of 100 basic references on research in mass communications compiled by Wilbur Schramm (9) were published since the end of World War II; half of them between 1948 and 1951. It was in that period that Gilbert Seldes proposed "a revaluation of the popular arts in terms of physics rather than aesthetics, in terms of social effects rather than private pleasure" (10). And it was then that Dallas W. Smythe (12) called attention to the

> . . . ironic paradox that our teaching is so heavily—and worthily—weighted with critical evaluation of literature and drama which occupy a minuscule part of our population's attention, while the real 'literature' and 'drama' of our culture, as measured by the proportions of our resources which go into them, consists almost entirely of the content of radio, movies, magazines, newspapers—and now television. Is the educational objective for 'complete living' being served? Whose 'complete living' is to be attained: that of the teachers, or of the students?

Since that time "mass culture has reached into the Academy both by its pervasive influence and as a subject of serious study," Bernard Rosenberg observed in the recent successful compendium on *Mass Culture; The Popular Arts in America* (8). *Mass Culture* and its companion volume *Mass Leisure* (6) are themselves part of this trend. Gilbert Seldes writing in the *Saturday Review* now calls for its extension all the way to the kindergarten (11).

The new type of academic attention devoted to mass-produced culture has also been noted in show business. The entertainment trade journal *Variety* devoted most of page 2 of its January 15, 1958, issue to the voices of the Academy. It cited Patrick D. Hazard of the University of Pennsylvania suggesting that "the college teacher is an important factor in the new equation of show biz . . . ." And it observed with William D. Boutwell, director of Teenage Book Club: "If education is a process of preparing young people to do what they are likely to do anyway, isn't it the duty of the schools to teach the coming generation how to be masters, not slaves, of the mass media?"

The National Council of Teachers of English had thought so already in 1950 when it published its pioneering research bulletin on *Education and the Mass Media of Communication* (2). The National Society for the Study of Education devoted Part II of its

1954 Yearbook to *Mass Media and Education* (3). The former dealt primarily with the use of popular culture materials in the classroom; the latter undertook an examination of the mass media in society, as well as in the classroom. It was concerned, stated the Introduction, "not merely with reading tastes, listening tastes, or television tastes as ends in themselves. We want also to help people master the values, the insights, and the understandings which will enable them to live realistically—not in fantasy—in a natural world."

More recently the Educational Policies Commission of the NEA published *Mass Communication and Education* (7). This booklet expressed the conviction that "this is an appropriate time for educators to seek perspectives on one of the most important social forces of the times." It noted that mass communication has helped make a new kind of society and has given the teacher a different kind of student to teach.

The question that remains is: to teach what? But before taking up that question, let us try to state some basic assumptions and considerations about mass communications and popular culture in society, considerations which underlie our attempt to answer the question of content.

BASIC ASSUMPTIONS AND CONSIDERATIONS

Society is a pattern of living, labor, and communication through which members of the species Homo Sapiens become human.

Popular culture is the broadest communicative context of messages and images through which society reveals to most of its members the nature, varieties, limitations, and potentials of the human condition.

The normative social function of popular culture is, therefore, to make available to all members of the species the broadest range or meanings of their own humanity that society makes possible, and, in turn, to help them build such societies as new conceptions of the human potential might require.

Popular culture can fulfill such normative functions to the extent it makes available representations and points of view which enable men to judge a real world, and to change reality in the light of reason, necessity, and human values. To that extent, popular culture also forms the basis for self-government.

Man's experiments with self-government are predicated on a historically new conception of popular culture. This new conception

assumes that men have such consciousness of existence as they themselves provide for in communications; that reason confronts realities on terms culture makes available; that societies can be self-directing only to the extent, and in ways, their popular cultures permit them to be so.

Much has happened since some of these assumptions found expression in the First Amendment. Popular culture has come to be mass-produced and harnessed to the service of a marketing system.

The Founding Fathers made life, liberty, and property subject to law but tried to protect freedom of speech and press from the main threat *they* knew—government. They did not foresee the revolutionary cultural development of our time: the transformation of public communication into mass-produced commodities protected from the laws of the republic but subjected to the laws of property and of markets.

Today the words of Andrew Fletcher, uttered in 1704, reverberate in the halls of the Academy (and, at times, of Congress): "I believe if a man were permitted to write all the ballads, he need not care who should make the laws of the nation." For ours is a revolution in the making of all the ballads.

The "ballads" of an age are those vivid, dramatic accounts and images which appear to compel attention for their own sake and which, in so doing, provide common assumptions about man, life, and the world. They are the means that create the terms upon which society communicates to its members.

Today these means are big, few, and costly. They are owned, controlled, and supported by industrial enterprises of mass communication. These enterprises, and the industries which support them, bear central responsibility for decisions affecting popular culture. It falls to them to safeguard the freedom to reflect on the requirements and dreams of a real world of human needs. But there are neither Constitutional guarantees nor alternative forms of support to protect the mass media in carrying out these responsibilities and in safeguarding these freedoms. In the absence of positive guarantees of public support, the media must depend for survival on the formula equating value with customers, necessity with popularity, and freedom with the marketplace; they must respond, above all, to the needs of private investment and to the realities and requirements of the corporate world.

Students of the mass media recognize, as did Ruth Inglis in her study of *Freedom of the Movies* (5), that "essential as the functions of communication are, those who control the movies are not ex-

pected to put themselves out of business in order to perform them." Some take the view, as she did, that the self-interests of cultural industry and the public interest coincide in large part.

The question is in what part, at what times, and under what circumstances. For we also find at times necessities of survival do not have instantaneous box-office appeal. Virtue might not always be on the side of the best customers. Freedom does not necessarily inhabit the marketplace.

Educators especially have wondered about the consequences inherent in the compulsion to present life in salable packages. They have frequently observed that in a market geared to immediate self-gratification, other rewards and appeals cannot successfully compete. They have been concerned about subjecting young people to a dramatically accelerated impact of the adult social environment as the target audience of consumers presumably wish to see it. There is fear of distortion and moral confusion in the image of the human condition that might emerge. And there is suspicion that the appeal to juvenile fantasy, role-experimentation, curiosity, and even anxiety and revolt, may be based more on the private necessity for developing habits of consumer acceptance than on the public requirements of developing critical judgment and of defining essentials and satisfactions of a creative, useful life in a changing society.

There are those, too, who wonder about the consequences for society. Robert M. Hutchins, chairman of the commission which sponsored Miss Inglis' work, now feels "certain . . . that . . . if our hopes of democracy are to be realized, the next generation is in for a job of institutional remodeling the like of which has not been seen since the Founding Fathers" (4).

These are questions and issues of the highest importance to young people, directly pertinent to the task of building a culture in which self-government survives. They are also questions of personal relevance to every individual seeking such self-direction as critical grasp of the cultural terms of one's own consciousness can yield.

Such assumptions and problems support the case for the study of popular culture as a basic and necessary educational task. Against the background of such considerations, the social aspects of mass communications may be studied by relating the products, practices, uses and effects of cultural industry to the private functions of the mass media and to the public functions of popular culture. Ultimately both functions may be viewed in the light of

the normative historical tasks of society and culture in human life.

Let us now turn to some further considerations which mark the outline of a journey of ideas. They emerged from seven years' experience in conducting a college course in the Social Aspects of Mass Communications.

THE COURSE OF A JOURNEY

Parents of youngsters often wondered how they spent their time "before children." Today they are equally apt to ask, "What did we do before television?" Their children hardly believe there even *was* such a time.

Television is only the latest of a snowballing series of cultural developments. The older discontinuity of cultural experience between first and second generation Americans may give way to a new and even more pervasive gulf between successive generations. The peer group and popular culture appear to gain importance in the primary context of socialization. The mass media of communications emerge as ever more authoritative socializing agencies.

As a nation we now devote more time to the consumption of mass-produced communications than to paid work, or play, or anything except sleep (and the "late show" is cutting into that, too). Television alone, only 10 years old as a mass medium, now demands one-fifth of the average person's waking life. Comic books, 20 years old, can sell 1 billion copies a year at a cost of 100 million dollars—four times the budget of all public libraries, and more than the cost of the entire book supply for both primary and secondary schools. Movies, developed within a lifetime, reach 50 million people who still go to theatres each week, the same number who stay home and watch them on TV *each night*—a total of 400 million a week. Almost one-tenth of national income is invested in "leisure."

How do we manage that investment? What are the returns? What are the patterns, uses, and consequences of the mass-produced daydreams we share in common? What is the meaning of growing up, learning, and living in the new American culture?

These questions launch us on a curious journey. It is more exploration and discovery than "coverage" of a well-charted academic preserve. It brings together subjects traditionally separated. It touches closely upon some matters that have transformed the quality of life within a generation, yet have almost come to be taken for granted.

Social Aspects of Mass Communications is such a journey. Its course centers on the circumstances and consequences of cultural mass production and consumption—a subject area encompassing a large part of the soil and climate in which we grow up and learn.

The purpose of the course is to develop the approaches, values, and methods of social science in the consideration of mass communications as popular culture.

The main burden of the journey consists of ideas, reasons for holding them, and evidence supporting them. Activities include readings, discussions, demonstrations, and a group project involving joint study of a single subject such as science fiction, the Western, the image of Asia, or the portrayal of adolescents in the mass media. Individual student projects provide opportunities for probes in other directions.

The student does not require (nor should he expect to acquire) specialized skills in the manipulation of equipment, materials, or people. He will not prepare himself to "elevate" his tastes by criteria that never worked in the past, or to perform professional services required under conditions of employment in mass communications. He will be asked, rather, to *examine* conditions, to develop a way of *observing* circumstances of cultural mass production and consumption. This, we hope, will help him derive some insight into certain aspects of information, entertainment, and persuasion, and lead him to consider the formation of tastes, values, standards, and ways of professional conduct. Consideration of the role and functions of cultural industry in the life of a society might also enable him to speculate about what kinds of cultural aims can be fulfilled under what kinds of conditions.

We try to go beyond superficial or snob-classifications, such as hard cover vs. soft, slick vs. pulp, classical vs. popular, A vs. B movie, spectacular vs. daytime serial, and so on, on the assumption that any representation of life to which millions expose themselves deserves serious study.

Respect for time, skills, energies, and lives spent in creating and consuming cultural products of all sorts should mean two things: On one hand, it should help us avoid the pose of sitting in judgment over people; on the other hand, it should encourage scrutiny of the circumstances of cultural creation and consumption undaunted by critical acclaim, popular clamor, or opprobrium: it should point the way to examination of sources, production, content, and social implications in terms of human values and uses.

The outcome of the journey can, perhaps, be measured most meaningfully in terms of progress toward three types of self-direction: (a) consumer self-direction—making choices in the light of considered interests and values; (b) professional self-direction —making choices in the light of the responsibility of the professional or producer in popular culture for providing the choices for the consumer; (c) self-direction as a citizen—making choices in the management and control of social institutions, in the creation of the conditions upon which the choices of both consumer and professional or producer depend.

Now for a descriptive outline of the journey itself. In a sentence, the course is designed to help develop ways of observing the mass media as social institutions producing images of man, life, and the world, and to reflect on the uses we make of them.

This nutshell description identifies four phases of the course. The first has to do with the development of observing "familiar" things in ways different from casual, everyday observations. The second involves the observation of the mass media of communications as social institutions and of popular culture as a function of society and of human development. The third phase of the course deals with that body of representations and points of view which provides the cultural time-space context and value orientation of behavior we consider characteristically human. The fourth phase explores the uses we make of our investment in "leisure time" and the range of alternatives that meet the criteria of democratic society.

Let us take a passing glance at each of these phases and note some of the problems and considerations that mark the course of the journey.

"To develop ways of observing . . ."

Analysis is acute observation from conciously varied points of view. It begins with awareness of one's position in relation to the thing observed, and goes on to search for the most valid point of view from which it can be observed to yield insight into its qualities and functions.

Assumptions, context, point of view, are key concepts in the discussion of observation and perception. They are involved in the ways we look at things, name things, use things; and, consequently, they are involved in the ways in which we *represent* things.

The analysis of communications is, therefore, compounded ob-

servation: In looking at a picture, for example, we do not merely observe a "thing"; we observe an observation.

What's in a picture? A "thing" viewed from a "built-in" point of view, in a certain context, and probably on the basis of some implicit assumptions about the nature of the object or event portrayed. For example, the angle of the camera and the position of the lights used to take a photograph (and used to convey, implicitly, a point of view) are just as much objective elements of the picture as is the "thing" portrayed. If we are unaware of the fact that we are observing the picture *through the eye of a camera* (or of an artist), we have lost some of our own power of observation; we fall in, unwittingly, with a "given" point of view.

Communication thus functions in several dimensions and on several levels. The terms of perception (the way people, life, and the world are "looked at") become built-in attributes of the way people, life, and the world are depicted through communication.

Each medium has its own terms of "perception" and system of observation. This is partly defined by the technical nature of the medium and partly by the social and institutional structure of the enterprise. The mass media of communications are not merely "windows" to a world of reality and dreams; they are active creators of synthetic images and observers of both reality and dreams from points of view, contexts, and assumptions historically structured, socially and technologically determined. To become analytical observers of these communications, and of the patterns of culture they weave, we need to study the position of the mass media in society, and the points of view their position imparts to their messages. Then we need to define and validate the position from which *we* observe their observations.

"The mass media as social institutions . . ."

The dreams of sleep are individual and private in any society. But the popular daydreams of our industrial culture are privately mass-produced for a public market of shared desires. How did this arrangement come about? What are the communication requirements of mass production and the production requirements of mass communication? Are the media private business or public art?

Cultural (or any other) industry exists to produce at a profit. Regardless of the nature or quality of the product, if this bedrock requirement is not met, the enterprise goes out of business and investment goes elsewhere to seek returns. In the nature of commercial "free" enterprise, this is within the realm of private deci-

sions. Any investor, corporation, large or small business, may decide to produce or underwrite the production of almost any cultural product. This right is protected under the assumption (born of an age before mass communications) that spontaneous, private competition in the marketplace is the best way to assure cultural diversity, the availability of all points of view, and freedom of speech essential for self-government.

By entering the cultural marketplace, the entrepreneur may or may not be governed by, or even concerned with, the original reasoning that protects his access to the facilities which now dominate that market. But he must be concerned, and governed, by another set of considerations. He has acquired a stake in the *popularity* of his product. He has risked his capital on the assumption that a certain market is large enough, or can be *made* large enough, to make mass production of his commodity profitable.

So far this is still a private matter.

Now there is no formula for popularity, but neither is popularity entirely accidental when the stakes are high. "At BBDO there is no room for guesswork in planning the TV special," announced the giant advertising agency in a trade paper (1). And it went on to explain:

> Everything begins with a marketing concept: a one-cent sale, a line introduction, a seasonal reason, a corporate profile to be etched indelibly in the public mind. This is the backbone of the event.
>
> Next comes selection of the right property. . . . Then there's the clearance of the right time spot. . . . Trade and consumer campaigns must be coordinated. . . . Product and program promotion must be tied together. . . .
>
> While this is all going on, one of the largest staffs of trained TV-research people helps us chart the show's course—they pre-test copy, analyze results and set ground rules for delivery of the next special.

The strategy of private enterprise mass production is geared to careful assessment, cultivation, and exploitation of marketable desires. A detachment of intelligence specialists probes public fancy; reconnaissance brings in the sales charts, cost-per-thousand figures, consumption statistics; corporate headquarters issues a series of battle orders; an army of popularity engineers prepares compelling messages designed to make the public want what it will get. Then vivid images of life roll out of the "dream factories," produced to exacting specifications to "give the public what it wants." These are the images and messages through which millions see, and judge, and live in the broader human context. They affect the tone of living and the pattern of society. They cater to an in-

satiable search for imaginative and informative representations of the human condition, for dreams that heal and restore, soothe and thrill, and bind men together across vast distances of space and time. They inevitably, and often unwittingly, help infuse life with direction, meaning, value.

This is a public matter.

"Producing images of man, life, and the world . . ."

At the private end of the transaction we observe problems of media ownership, control, and support, and we note market research gathering information about audiences and conditions of sale. At the public end we view social functions and controls and consider critical research inquiring into content. Then we see the two intertwined in the eyes of the beholder. We find the conditions of sale implicit in the content and quality of the dreams.

Beneath the overt forms of theme, plot characterization, reporting, description, even of light repartee, there are the covert elements of time, context, assumptions, point of view. In massive industrial enterprises such as the major communications media these elements are likely to be social rather than individual. A creator of mass cultural products who only wants to "express himself," a prominent screenwriter commented, "better go off to some other field where millions of dollars are not riding on his personal aspirations" (13).

Social content of media products becomes more discernible when large systems of output are studied and compared. Mass is part of the energy equation, and so is velocity. The atmospheric pressure of popular culture, as of gases, does not depend on the behavior of a single molecule. The laws of cultural dynamics, whatever they might be, will emerge from careful observations of the ways in which industrial and market conditions and the corporate positions of cultural enterprises—including their relationships to investors, agencies, sponsors, and their consequent approaches to audiences, to society, and to the world as a whole—implicitly shape the assumptions, contexts, and points of view imbedded in mass media products.

These covert elements of content are the "hidden messages" of popular culture—pervasive, subtle, yet obvious upon scrutiny. They spring from historical relationships and concrete circumstances of mass production. They are reflected in an ideological undertow expressed often through patterns of selection, omission, juxtaposi-

tion, through just the way things are looked at. Unwitting commitments to values, and to ways of perceiving, emerge from conditions of cultural production and consumption; they affect our assumptions about heroes and villains, love and sex, classes and professions, youth and old age, cooperation and conflict, past and future, ends and means. From these assumptions spring more mass-produced images of man, life, and the world.

"And to reflect on the uses we make of them."

One way to measure the usefulness of a civilization is to trace the time it allows, and the provisions it makes, for activities that relate directly to a diversity of human aspirations.

Judged by the criterion of time, ours has been a useful civilization. The historic compromise between time committed to necessary labor on behalf of a ruler, an employer, or a society, and time spent on behalf of one's chosen aims, seems to be rapidly changing. But the change is a perplexing one.

Our industrial order was once attacked for subjecting man to wage-slavery. It is now charged with operating a corporate "welfare state," exploiting the leisure-time markets it has brought into being, leaving little choice for individual self-direction between the dire alternatives of surfeit and boredom.

The building of markets *has* been among the prominent social uses of popular culture. Mass production requires mass markets. Mass markets are gained through mass audiences. Mass media of communication build mass audiences and, in the jargon of the trade, "deliver" them to mass producers through their ability to inspire and cultivate consumer desires for all types of goods and services.

But when consumer desires (or pocketbooks) appear to be drained, we find it difficult to flex our productive muscles to capacity except in war or in preparation for war. And we find it equally difficult to define creative tasks for the popular-culture arm of our industrial system.

So we use much of the leisure time gained through mass production to preach the gospel of more consumption right up to (and beyond) the limits of our ability to buy, use, or endure. And we tailor an increasing share of our popular cultural resources to the demands of salability, often irrelevant to creative purpose. This makes our machines more productive and our investments more profitable. To what extent, in what ways, and under what conditions can it also make *lives* more productive, and "leisure" *time* more creative?

"Pure entertainment" and "art for art's sake" are disguised merchandising slogans we use to evade examination of the human significance of what we want to sell, or buy. The uses of a pill are not disclosed in the taste of its sugar coating. The functions of cultural products are not revealed in the likes and dislikes that determine our selection from what is available. Our choices have far-reaching consequences beyond those registered at the box office or on the cash register. Study of these uses and consequences touches upon the terms of our own self-direction, and upon some hidden paradoxes that blur our vision of the good life.

Not least among the paradoxes confronting "people of abundance" "killing time" in the "affluent society" is the shadow of *want*, rather than boredom or surfeit, in our own midst and around the world. Some government reports speak of as many as 1 out of every 5 American families living in stubborn pockets of permanent poverty. Poor people, poor customers, are the forgotten people of our public arts. Out of sight in the selective mirror of the mass media, hidden from public consciousness, without power and without a voice, they are overlooked when the uses of popular culture are discussed.

All in all, the majority of human lives around the world are still spent in brutal labor not only machines but animals could do as well, if not better. Saving rather than spending, boosting production to build the foundations of a more human existence rather than titillating lethargic consumers—these are the world-wide material and cultural imperatives of our age.

The means that glut us (and at what price?) could also make human want obsolete. The alternatives we present thus involve the fate of others. But never "only" of the "others"; the American "way of life" as we know it today rests on the active (or at least passive) cooperation of half the world's peoples. Our decisions cannot long conflict with the needs and aspirations of the "others" without destroying the bases of any assumed benefits to us. The morality and usefulness of the alternatives we present, and of the decisions we make, can thus scarcely be shrugged off as a purely private matter of individual whim, taste, or enterprise.

Nor is that all of the paradoxes. The notion of self-government was predicated upon the existence of autonomous publics making conscious decisions in a cultural context of vigorous social criticism. This freedom and diversity was to be subject to no law, but guaranteed by law. The rise of cultural mass production, creating audi-

ences, subjecting tastes, views, and desires to the laws of markets, and inherently tending toward the standardized and the safe rather than the diversified or critical, creates new problems in the theory and practice of self-government.

Considered in such a perspective, the value and uses of time, resources, and energies invested in mass communications take on new dimensions. Are thirsts exploited or quenched? Are sensibilities dulled or sharpened? Are vital resources spent in anxious, unreasoning drift, or invested in relevant exploration? Are the choices we make based on the real alternatives of our time presented in a representative context of all pertinent evidence? By what criteria and by what methods do we judge the market value of leisure time and the survival value of popular culture?

* * *

The journey ends, as it began, with a sense of discovering questions rather than of "covering" the answers. The issues explored do not require, or even permit, easy "solutions" arrived at in a classroom. They are permanent problems of personal judgment, professional conduct, communications research, social theory, and national policy. They have emerged as continuing responsibilities and challenge educational planning as the study of English or citizenship or science does. We have tried to indicate one possible response and to suggest that perhaps the time is ripe for more systematic planning. A good way to begin might be a series of experimental teachers workshops. The initiative could come from a number of fields. There are good reasons of past interest, current concern, and future professional orientation to suppose that it might come from those involved in the study and teaching of communications problems in education.

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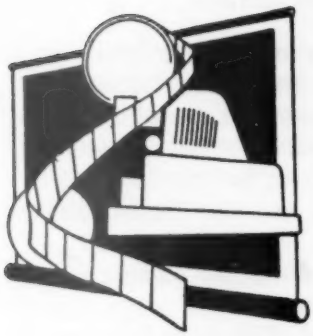

FILM

REPORT ON THE ADMINISTRATION OF EDUCATIONAL FILM ACTIVITIES IN 14 COUNTRIES

A Survey by the International Council For Educational Films for UNESCO

INTRODUCTION

Shortly after the beginning of the century it became obvious that films could be used as an effective tool for teaching. Since then many countries have built up educational film activities especially within their ordinary school systems. Conditions have varied from country to country, but the problems have been more or less the same. Film is expensive, and educational film activities have meant a very great investment. The pedagogic use of the new tool had also to be introduced in such a way that the economic efforts made were not in vain.

Today many of these countries have reached a point where they feel the need to reconsider, to some extent, the organization of their educational film system in the light of the experience gained. Many other countries are in the midst of building up or modernizing their entire school system, in which educational films are supposed to play an important role, and the present report is published as a working document to meet the frequent requests for information which UNESCO has received on the matter.

One of the most important questions that has also been widely discussed is the size and method of public investments that may be needed. In what ways may governments cooperate with provincial and local authorities in order to create an effective system? What are the present standards in this respect?

Information has been collected by the International Council for Educational Films on behalf of UNESCO to form the basis of

a survey on the administrative status of school film activities in a number of countries that are represented in the International Council for Educational Films. The survey covers Austria, Belgium, Canada, Denmark, France, the Federal Republic of Germany, Italy, Luxemburg, the Netherlands, Norway, Sweden, Switzerland, United Kingdom (England and Wales, Scotland), and the United States of America.

Through various circumstances the publication of this report has been delayed. The figures given have undergone some change since the information was collected, but the structural patterns of the activities described remain unchanged.

GENERAL COMMENTS

The "Administrative Pyramid"

The educational film system of a country may be compared to a sort of administrative pyramid.

On the central level, at the top of the pyramid, there is the production, import, and editing of the films as well as the first stage of distribution.

On the regional level, in the middle of the pyramid, distribution centers are usually found, but some simple productions of local interest may also be undertaken here.

On the local level, the base of the pyramid, we find the final stage of distribution and the actual consumers and users of the films.

This pyramid corresponds to the ordinary administrative structure of a country, from the central government through provincial governments (of federal states) or other regional authorities down to the municipalities. All these authorities may in one way or another be responsible, or accept responsibility, for the supply of educational films to the schools of the country.

The character of the educational film system in a country usually depends on where the initiative was taken. In federal states it is usually at a regional level, but also at a local level within each part of the country. In other countries the initiative may be central, local, or both. From the point of initiative, the pyramid has then developed downwards or upwards. In any case, the level where the initiative was taken will easily have proceeded to dominate to some extent. The problem is then to coordinate and balance the public interest at the different levels in order to achieve the best results.

In some cases the pyramid, as described here, may remain incomplete. In a federal state education may not belong to the responsibilities of the federal government. The regional level may not be needed in small countries with easy communications. The shape of the pyramid will thus depend on the geographic and administrative structure of a country.

The development of the administrative pyramids in the 14 countries covered by this survey may be described as follows:

A. From central level downwards:	Austria, Belgium, Denmark, France, Italy, Luxemburg, the Netherlands
B. From regional level upwards and downwards:	The Federal Republic of Germany, Switzerland
C. From regional level downwards:	Canada, United States of America
D. From local level upwards:	England and Scotland, Norway, Sweden, and partly France and the United States of America.

Production

In most cases the production of educational films was originally undertaken by the ordinary film industry. In many countries, however, the private film industry was not interested in this or gave it up, sooner or later, as this type of production was unprofitable. Government or other official bodies often found it necessary to support or to take over entirely the production of educational films. In other cases, governments found that an authoritative control was needed over the type of educational film material offered to schools and desired to secure such control by economic participation, starting at the production end.

For these reasons three different groups may be found among the countries surveyed:

A. Production is entirely governmental or governmentally sponsored in Austria, Belgium, and Luxemburg.

B. Production is governmentally supported and/or financed by other official or semi-official bodies in Denmark, England and Scotland, France, the Federal Republic of Germany, the Netherlands, and Norway.

C. Production is undertaken by private producers in Canada, England, France, the Federal Republic of Germany, Italy, Sweden, Switzerland, and the United States of America.

Other factors influence production conditions in such a way that it is hard to draw definite conclusions regarding the effect of the different economic systems. The information collected seems to show that production is more intensive in countries where the ordinary film industry is involved one way or another. It also seems to be fairly obvious that a higher degree of governmental or other public investment has led to a more adequate coverage of the whole educational field. While private producers are forced to take into account the possibilities of lowering their production costs by distributing their films, and for this reason direct their productions mostly at the elementary school levels which present the biggest market, governmental institutions do not have to take such economic factors into account and can extend their production equally over all school levels, including those advanced schools of which only a few are to be found in each country. Thus, the emphasis on film production for secondary schools is apparent in, for instance, Austria and Belgium.

It is difficult to find any significant differences in the pedagogic quality of the films produced under private and official auspices. Good and bad educational films are made in all countries. Generally there seem to be no particular differences in actual costs between governmental and private educational film productions of equal pedagogic quality and based on similar manuscripts.

The educational film movement started when only 35mm silent, black-and-white films existed. Later developments have led to the use of 16mm film prints, although in most cases films are produced on 35mm stock for technical reasons. Films are rarely produced in 16mm, which on one hand saves production costs to a certain extent but on the other hand leads to inferior technical quality, at least in black and white. The choice of format in color film production varies, and because of various recent technical developments in this field it is not possible at this moment to declare any definite tendency.

Some countries, such as Canada, England, France, and the United States, use practically only sound films. In the countries where both sound and silent films are used, there is in most cases a more or less marked preference towards the sound film. Only in Austria, no such tendency seems to prevail.

Color films have been introduced in the schools of most countries, and in spite of the higher costs involved they are enthusiastically received, whenever color is found pedagogically essential.

In practically all cases—whether the films are produced by private or governmental producers—pedagogic and subject specialists act as consultants to the producer from the manuscript stage and all through until the final testing of the completed film. These specialists may be on the production staff, but in most cases it has been found effective to call on pedagogic advisers active in classroom teaching for each individual film.

The international supply of educational films obviously plays a very important role. In most countries imported films outnumber home productions in the yearly release of new titles. The greatest part of this international flow of educational films seems to be channeled through bilateral exchange agreements, and only a few producers may be said to have found an international commercial market for their films.

Distribution

There have been three main reasons for official participation in the distribution of educational films.

A. When governments have engaged in educational film production, they always followed up by distributing their films.

B. Sometimes a need has been felt to control, through an official distribution, the quality of material offered to the schools.

C. A wish to lower the costs to schools of educational films, expensive in themselves, by centralizing distribution under governmental control.

In federal states the word "governmental," when used in connection with educational film distribution, does not usually refer to the federal government. Such functions are normally operated by the provincial or state governments. This is, for instance, the case in the Federal Republic of Germany, Switzerland, the United States of America, and to a certain extent in Canada.

A. Governmental distribution centers, covering all schools in the country, exist in Austria, Belgium, Denmark, Italy, and Luxemburg.

B. In France, the governmental film distribution covers all "écoles publiques" but not the private schools or those administered by religious groups, for example.

C. In England and Scotland and the Netherlands, the distribution centers are not governmental but are governmentally supported in different ways.

D. In the Federal Republic of Germany, the central institution for film distribution is cooperatively supported by the provincial governments ("Länder").

E. In Norway the distribution center is indirectly administered cooperatively by the municipalities.

With the exception of Belgium, Luxemburg, the Netherlands, and Scotland, all countries seem to aim at decentralized distribution in order to save time in transport and organization so that the schools may have the films as close at hand as possible.

A. In Austria and Denmark, the governmental film centers deposit prints of their films in regional centers financed by the government.

B. In France, certain types of regional centers are financed by the government; other types are supported by provincial or local authorities.

C. In Canada, the Federal Republic of Germany, Switzerland, and the United States of America, the provinces, Länder, cantons, or states maintain distribution centers.

D. Regional and local film centers, not financed or supported by the state, exist in Canada, Denmark, England, France, Norway, Sweden, and the United States of America. In most cases such centers are operated by regional and local school authorities.

The films are available to schools under various financial arrangements.

A. In Austria, Belgium, the Federal Republic of Germany, and Luxemburg, the films are on loan free of charge from the distribution centers.

B. In Denmark, France, Italy, the Netherlands, and Switzerland, various systems of yearly subscription are exercised.

C. In Canada, Denmark, England and Scotland, France, Italy, Norway, Sweden, Switzerland, and the United States of America, the films can be rented or prints purchased.

It is very hard to estimate the economic effect of these different distribution systems as far as the total expenses for educational film activities are concerned. Where the schools get the films cheapest, the governmental education film budget is also highest and vice versa.

In Austria, for instance, the central educational film budget for production and distribution reaches an amount of some $200,000, and the schools get the films on loan free of charge. In Sweden, to mention a contrary example, there is no central educational film budget at all, and so the film prices charged to local school authorities cover both production and distribution costs.

Local Administration

Obviously the local financing of educational film activities follows the general principles of the school system in each country. Either it is municipal or it is private with different degrees of municipal support.

The local administration of film activities has, however, not yet reached the standing of, for instance, the school library service. Generally speaking, it can be said that in the majority of the countries under survey there are no special film coordinators to be found in most schools; in a number of them film activities in schools or local educational film centers are supervised by voluntary teachers in their leisure time, for which work they get either insufficient remuneration or nothing at all. In any case their position is not comparable to the school librarian's; only in a few countries are full-time appointed film supervisors to be found.

There is a general feeling that this situation is one of the weakest points in the development and usage of educational films, and the general trend seems to be to combine the use of films with other audio-visual media under a supervisor or coordinator who should have the same status as the school librarian.

The supply of projectors is usually a responsibility of the local school authorities. In many countries, however (Austria, Belgium, Canada, Denmark, France, the Federal Republic of Germany, Scotland, Switzerland, and the United States of America), various types of governmental subsidies exist for the purchase of projectors. The number of 16mm projectors available to schools for educational film activities is estimated approximately as follows:

Austria	3,900 (3,850 silent, 50 sound)
Belgium	2,700 (200 silent, 2,500 sound)
Canada	6,000 (nearly all sound)
Denmark	1,800 (1,500 silent, 300 sound)
England and Wales	8,000 (mostly sound)
France	8,000 (nearly all sound)
The Federal Republic of Germany	22,000 (20,000 silent, 2,000 sound)
Italy	5,000 (1,500 silent, 3,500 sound)
Luxemburg	150 (110 silent, 40 sound)
The Netherlands	3,200 (3,000 silent, 200 sound)
Norway	3,100 (600 silent, 2,500 sound)
Scotland	1,400 (1,000 silent, 400 sound)
Sweden	6,000 (3,000 silent, 3,000 sound)
Switzerland	2,000 (1,800 silent, 200 sound)
United States of America	The number of projectors is not known, but about 80 percent of elementary schools and 95 percent of secondary schools have access to one or more sound projectors; silent projectors are hardly ever used.

The general trend towards the use of sound films is shown by the schools purchasing projectors. In most of the countries where silent projectors are a large part of the total projector supply, reports show that hardly any silent projectors are now being bought by the schools.

Teacher Training

One of the drawbacks to the development of educational film activities is the insufficiency of teacher training facilities in the use of audio-visual media.

A. In Austria, Denmark, Luxemburg, Norway, Sweden, and two states of the U. S. A., special training is compulsory for a teacher's certificate.

B. In France and the Netherlands recent laws demand the same competence, and appropriate training systems are being improved each year.

C. In Canada, England and Scotland, Switzerland, and the United States of America, some teacher training institutions give special courses on audio-visual media and some do not.

D. In Belgium, the Federal Republic of Germany, and Italy, future teachers seldom receive any special training in the use of films.

The type and amount of training varies widely. In some countries only two hours are devoted to this subject; in other countries the course is a full week. Also within the same country the range of variation is often very wide, partly because in most countries there seems to be a lack of competent teachers for such training.

Training normally includes lectures on the application of pedagogic theory in the use of audio-visual media, as well as some classroom practice. In most cases future teachers are also instructed in the use of different types of projectors. In a very few cases, future teachers may receive some training in production techniques, making it possible for them to produce simple items for local teaching.

It should be specially noted, however, that in hardly any instance do training programs include anything on the elements of film expression as a means of communication or on the art of the film itself. This is often a handicap, partly since such training would be a good background for the understanding of the pedagogic use of films, partly because the importance of film understanding in modern life is such that the teacher will certainly meet this problem outside as well as inside the classroom.

In many countries, teachers may find better possibilities for audio-visual training after they have entered their profession, rather than in teachers colleges.

Courses for in-service teachers are organized by governmental institutions, universities, and film centers, but mostly it is the teachers organizations themselves that have undertaken to cover what they consider to be a gap in the professional knowledge of their members. In Canada and the United States of America some universities arrange very extensive courses giving an audio-visual director's certificate. A similar specialist's certificate is given to French and foreign participants in yearly courses, now arranged by the Audio-Visual Center of St. Cloud in France.

(To be concluded in Winter issue)

CURRENT DEVELOPMENTS IN COMMUNICATION

THE FIRST YEAR OF TITLE VII

• KENNETH D. NORBERG

• THOMAS D. CLEMENS

The National Defense Education Act has been characterized as a bold, many-faceted assault on the educational problems of America. In many ways, Title VII is unique in its approach to achieving the over-all purpose of the Act. Not only is Title VII focused exclusively on the problems of instructional media, but also it provides for the exercise of initiative by individuals, institutions, and agencies concerned with education in a manner which is markedly in keeping with the traditions of public education in the United States.

THE PROVISIONS OF TITLE VII

The primary purpose of Title VII is to encourage more effective utilization of television, radio, motion pictures, and related media for educational purposes. Each of the first two Parts of the Title provides for different types of activities intended to achieve this purpose:

> *Part A* provides for the conduct and fostering of research and experimentation in the educational uses of the new media of communication which may prove of value to State or local educational agencies in the operation of their public elementary or secondary schools, and to institutions of higher learning. The Title indicates three broad types of research to be undertaken:

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1. The development of techniques for using or adapting the new media for educational purposes;
2. The training of teachers to use the new media; and
3. The presentation of academic subject matter through these media.

Grants may be made to public or private nonprofit agencies, institutions, or individuals, and contracts may be made with public or private agencies, organizations, institutions, or groups.

Part B, exclusively a contract program, is concerned with the dissemination of information concerning the new educational media. Types of activities which may be undertaken include: (1) studies and surveys; (2) publications; and (3) advice, counsel, and technical assistance to educational agencies and institutions.

Title VII also provides for the appointment of an Advisory Committee of New Educational Media, consisting of 14 members, which advises and makes recommendations to the Commissioner of Education, reviews all proposals, and certifies approval to the Commissioner of all proposals which it considers appropriate for funding by grants-in-aid or contracts. The composition of the Advisory Committee is:

1. The Commissioner of Education;
2. A representative of the National Science Foundation;
3. Three individuals identified with the sciences, liberal arts, or modern foreign languages in institutions of higher education;
4. Three individuals actually engaged in teaching or the supervision of teaching in elementary or secondary schools;
5. Three individuals with demonstrated ability in the use or adaptation of the new media for educational purposes; and
6. Three individuals representative of the lay public who have demonstrated an interest in the problems of the communication media.

HOW TITLE VII IS ADMINISTERED

In order to carry out the provisions of Title VII of the National Defense Education Act, the Educational Media Branch, with the Division of Statistics and Research Services, has been set

up in the Office of Education. In addition to its responsibilities in Title VII, the Branch also conducts all the activities formerly carried on by the Visual Education and the Radio-TV Sections of the Division of State and Local School Systems. The inclusion of all personnel concerned with the educational uses of the new media within the one Branch provides a continuity of experience and depth of interest in the media which would not otherwise be possible.

The Educational Media Branch is divided into two Sections:

The Research Section, which is primarily concerned with the processing and appraisal of applications for research grants and contracts, the negotiation of conditions for grants, and the general supervision of research projects supported under the provisions of Title VII.

The Dissemination and Services Section, which is charged with the collection, annotation, and dissemination of information relating to the new media, both within and outside the provisions of Title VII. This charge is carried out through studies and surveys, through the publication of printed, visual, and auditory materials, and through consultation, technical services, and demonstrations.

During its first year of operation, the Educational Media Branch has established a number of policies and procedures which have been intended to facilitate the goals of Title VII. These are summarized below.

Part A—Research and Experimentation

1. Evaluation of research proposals

By law, only the Advisory Committee can approve a project for support under the provisions of Title VII. However, the evaluation process is so complex and difficult that the Advisory Committee has requested technical and objective assistance in gathering necessary information for making its decisions. These decisions are based upon:

A. *Evaluative criteria*

All research proposals are evaluated on the basis of:

(a) The pertinence of the proposed research to the intent of Title VII;

(b) The nationwide educational significance of the proposal;

(c) The appropriateness of the experimental design and research techniques to achieve the purposes of the study;

(d) The competence of the personnel and institutional facilities to carry the proposed research to completion; and

(e) The economic efficiency of the proposal, as compared with other possible approaches to the problem.

B. *Rating of proposals*

Each proposal is read and rated on the basis of these criteria by five experts from outside the Office of Education, one member of the Branch staff, and one Office of Education specialist from outside the Branch. These ratings are considered by the Advisory Committee as it reads the proposal and makes its recommendations to the Commissioner of Education.

2. Maximum research productivity

It was apparent to the Advisory Committee that the success of the Title VII program would be dependent on rapid collection of significant and reliable research information within the first year of operation. It was essential, therefore, to use available funds to support the largest possible number of significant research projects. Policies established with the intent of assuring maximum productivity were:

A. *Grants vs. Contracts*

The problem of whether to support research by grant or contract is essentially a matter of whether initiative in defining research projects should be taken by those with professional responsibilities in the field, or by the Office of Education. In the opinion of the Advisory Committee, the best immediate results and the greatest long-term benefit would result from reference to the field, rather than from an immediate (and arbitrary) identification of research areas by the Office of Education staff. For this reason, only the grant portion of Part A has been activated during the first year of Title VII. The activation of the contract portion of Part A has been delayed until staff analysis and classification of existing research indicate areas which can be more

appropriately supported by contract research rather than by grants.

B. *Programs of Research vs. Research Projects*
In many instances, broad programs of research, conducted by a small number of eminent persons or institutions, can provide results which cannot be achieved by the support of a large number of specific research grants. Two factors militate against the support of such programs of research under Title VII at present: first, such support implies a type of general theoretical agreement which, in the opinion of the Advisory Committee, is not now present in the media field; and second, the support of programs of research would, of necessity, make for a much narrower base of participation in the Title VII program than would be possible through the support of specific projects. The Advisory Committee decided, therefore, that at the present time no support will be provided for general programs of research, but only for specific research projects.

C. *Personnel vs. Capital Expenditures*
Media research requires more physical facilities and equipment than many other types of educational research. Yet, the essential element in all research is the creative and professional thought of people, however important hardware may be. The Advisory Committee was confronted with the problem of providing adequate support for all essential expenditures related to approved research projects, and at the same time initiating as many worthwhile projects as possible. Two policy statements were made in order to solve this problem equitably:

(a) Federal funds may not be used for the acquisition or permanent modification of buildings or other permanent installations, such as transmitters.

(b) Federal funds may not be used for the outright purchase of equipment with an expected lifespan greater than that of the research project. Instead, an equipment allowance is made amounting to 20 percent per year of the undepreciated value of essential equipment.

Part B—Dissemination

Since Part B of Title VII is exclusively a contract program, policy to support and implement dissemination activities has necessarily been phrased as a series of general guidelines, rather than as rulings on specific issues. These guidelines are:

1. All dissemination activities should be limited to those new educational media activities which have national significance.
2. All dissemination activities must further the accomplishment of one or more of the following five aims:
   A. To provide information about research completed, in process, or projected.
   B. To provide more information about significant programs and teaching practices.
   C. To increase the accessibility and availability of the new media by bibliographic or direct means.
   D. To directly improve educational use and the training of teachers for educational use of the new media.
   E. To develop national goals, standards, and guidelines for improved educational use of the new media.

THE STATUS OF TITLE VII PROJECTS AND ACTIVITIES TO DATE

The National Defense Education Act authorized the expenditure of no more than $3,000,000 for Title VII research and dissemination activities during Fiscal Year 1959. The initial appropriation by Congress was for $500,000, with a supplemental appropriation of $1,000,000 in May 1959. An additional $100,000 was made available for New Educational Media research and dissemination activities from funds originally allocated to Title X of the National Defense Education Act.

In all, then, a total of $1,600,000 was available for expenditure on Title VII activities by June 30, 1959. Of this amount, $1,349,985 was obligated or expended for Part A projects, and $249,981 for Part B projects, making a total expenditure of $1,599,966. Congress has, at the time of writing, appropriated $3,000,000 for expenditure on Title VII projects during the current fiscal year.

Part A—Research and Experimentation

At its meetings on March 5-6, and May 11-12, the Advisory Committee considered 353 separate proposals for research projects

from 40 different States, and the District of Columbia. Sixty-nine of these proposals, from 25 different States were approved for negotiation by the Advisory Committee. One of the approved projects was withdrawn by the institution who submitted it, and negotiation has not yet been completed on 8 projects. At the present time, 60 approved research projects have received Title VII grants, with an additional 8 to be funded when negotiation is completed. A list of the 60 projects which have received grant awards at the time of writing is appended.

An examination of the list of approved projects permits some interesting generalizations about the problems recognized by media researchers. Of the 60 research proposals approved by the Advisory Committee, 19 are concerned with the types of academic content suitable to presentation via the new media, 22 with methods of utilizing the media, 17 with the quality of education resulting from use of the media, and 9 with direct comparisons between the effectiveness of the new media and traditional methods of instruction. Types of media involved in the approved projects include motion pictures, slides, filmstrips, magnetic recordings, broadcast and closed-circuit television, kinescope and video tape recordings, large transparencies, and teaching machines.

The average approved research proposal will have a duration of more than two years, and would cost its supporting institution $83,581, if Federal funds were not available. Federal funds required to carry all projects approved thus far to completion total in excess of $5,590,000.

Part B—Dissemination

The Advisory Committee has thus far approved for support 16 dissemination activities. To date, one of these has been supported by requisition, and 12 have received contracts. The remaining projects are still in the process of negotiation, and will be funded subject to the completion of negotiation and the availability of funds. A list of approved dissemination activities funded thus far is appended.

CONCLUSION

The wide response among educators and media specialists to Title VII is in itself a confirmation of the need for such legislation as the National Defense Education Act. It is evidence of extraordinary interest in the problems of using communication media in education that over 400 different proposals for research and dis-

semination activities should be forthcoming within a period of six months from the time of enactment of the enabling legislation. The status and quality of the profession is clearly attested by the fact that, within this same period of time, 85 of these projects should be deemed worthy of Federal support.

Undoubtedly, the evidence which will be collected and disseminated on the basis of current projects will generate more thought and study, which will lead to better instruction at all grade levels. Because of the professional level of communication specialists, Title VII has resulted in a year of solid progress. Congress may provide funds and enabling legislation, the Office of Education may provide coordination and administrative framework, but the success of Title VII in the future will rest upon those who were influential in bringing it into being, professional educators and communication specialists.

SUMMARY OF RESEARCH GRANTS UNDER TITLE VII, PUBLIC LAW 85-864

State and Institution	Project Title	Principal Investigator
ARKANSAS		
Univ. of Arkansas	*A Study of Closed-Circuit TV as a Teaching Technique for Speech Improvement in the Public Schools*	Sara Ivey Norman DeMarco
CALIFORNIA		
John Tracy Clinic	*A Study of the Effectiveness of Using Selected Audio-Visual Techniques to Improve the Role of Parents in the Education of Deaf Children*	Edgar L. Lowell
Univ. of California Medical Center	*Experimentation and Development of New and More Effective Techniques and Methods for Training Teachers in, and Presenting Academic Subject-Matter Through, the Special Media of Television and Video Tapes in the Health Sciences*	Theodore S. Grant
San Jose State College	*Experimentation in the Utilization of Television for Classroom Observation of Practice Teachers*	William R. Rogers

FLORIDA		
Univ. of Miami	*A Summertime Field Experiment in Bridging the Gap Between High School and College Through the Use of Television Instruction*	Sydney W. Head
Pinellas County Board of Public Instruction	*To Provide Pre-School Experiences, via Educational Television, for Orientation of Children Entering First Grade and to Facilitate Adjustment of Group Activities*	Walter N. Durost
Florida A & M Univ.	*An Exploratory Investigation of Perception Reactions of Southern Undergraduate Negroes to Visual Materials Depicting Various Groupings of Ethnic Subjects*	Theodore B. Cooper
GEORGIA		
Univ. of Georgia	*A Study of Pre-Service Teacher Education in the Use of Media of Mass Communication for Classroom Instruction*	Garland E. Oliver
ILLINOIS		
Univ. of Illinois	*Illinois Studies in Inquiry Training*	J. Richard Suchman
National Association of Educational Broadcasters	*An Investigation of the Educational Characteristics of the New Media of Communication*	Herbert M. McLuhan
Univ. of Illinois	*Development of Methods and Materials to Facilitate Foreign Language Instruction in Elementary Schools*	Charles E. Johnson
INDIANA		
Indiana Univ.	*Improving the Quality of Teacher Performance by the Use of the Video Tape Recorder*	Henry A. Bern
Indiana Univ.	*Studies of Patterns of Influence in the School Situation as They Affect the Use of Audio-Visual Materials*	James Q. Knowlton
Purdue Univ.	*Preparation and Evaluation of Use of a Series of Brief Films of Selected Demonstrations from the Introductory College Physics Course*	D. J. Tendam

Earlham College	*New Instructional Media: Self-Instruction, Guided Instruction, and the Role of the Teacher*	John A. Barlow
KANSAS		
Kansas State Teachers College at Pittsburg	*A Study of the Effectiveness of Filmed Science Courses in Public Secondary Schools*	William A. Black
LOUISIANA		
Grambling College	*A Comparative Study of the Effectiveness of Three Techniques of Film Utilization in Teaching a Selected Group of Educable Mentally Retarded Children Enrolled in Louisiana Public Schools*	Lamore J. Carter Roy B. Moss Mamie L. T. Wilson
MAINE		
Maine State Dept. of Education	*To Identify and Evaluate an Economical and Practical Method of Televised Instruction to Stimulate Gifted Pupils in Small Secondary Schools*	Joseph J. Devitt
MASSACHUSETTS		
Boston Univ.	*Integration of Science Teaching by Television into the Elementary School Program*	Ralph Garry
Massachusetts Institute of Technology and WGBH-TV	*The Out-of-Classroom Audience of WGBH-TV: A Study of the Relationship of Motivations in Viewing and Amount of Learning*	Ithiel de Sola Pool
Harvard Univ.	*An Analysis of Behavioral Processes Involved in Self-Instruction with "Teaching Machines"*	B. F. Skinner
Massachusetts Council for the Public Schools	*Massachusetts Council for the Public Schools—FLES TV and Film Project—Teacher Training Division*	Gordon R. Silber
MICHIGAN		
Michigan State Univ.	*An Analysis of the Ways in Which the Application of New Communications Media May Improve Teacher Preparation, Especially in Such Fields as Languages, Science, and Mathematics*	James B. Tintera
Wayne State Univ.	*The Modern Language Audio-Visual Project: An Experimen-*	George Borglum

Wayne State Univ.	*tal Development of Materials and Techniques for the Improvement of Language Learning for Beginners*	George Borglum
National Educational Television and Radio Center	*A Study of the Relative Effectiveness of Using Filmed Demonstrations for Teacher Education, in a New High School Mathematics Curriculum*	Max Beberman
Wayne State Univ.	*Improvement of College Instruction in Biology, Through the Use of Recorded Lectures Designed to Increase Student-Instructor Contact*	John R. Jackson
Michigan State Univ.	*Development of Problem-Solving Ability, and Learning of Relevant-Irrelevant Information Through Film and TV Versions of a Strength of Materials Testing Laboratory*	Charles O. Harris
MINNESOTA		
Univ. of Minnesota	*To Develop and Evaluate Sound Filmstrips for Use in Improving Teacher-Pupil Contacts in the Classroom*	Ned A. Flanders
Univ. of Minnesota	*To Study the Effectiveness of Closed-Circuit Television in a Program of Teacher Education*	Robert J. Keller
Twin Cities Area ETV Corporation	*To Investigate the Relationship Between Specific Television Production Techniques and Content Organization and Maximum Learning Experiences*	John Schwarzwalder
MISSOURI		
Stephens College	*An Experiment to Determine the Values of Using Amplified Telephone Interviews with Significant People, to Enrich Certain Collegiate Courses*	James Burkhart
NEW MEXICO		
New Mexico Highlands	*Improving Language Arts of Bilinguals Through Audio-Visual Means*	Marion Cline, Jr.
NEW YORK		
Hunter College	*To Determine Methods for Improving Teacher Education and Measures of Student-Teaching Performance Through the Uses of Television*	Herbert Schueler

Syracuse Univ.	*An Experimental Study of the Influence of the Superior Teacher Using Television as a Transmission Facility*	Lawrence Myers, Jr.
Rensselaer Polytechnic Institute	*The Development of Animated Films to Facilitate Creative Space Perception*	Harold B. Howe
New York State Education Department	*New Media for the Improvement of Mathematics and Science Instruction*	Loran C. Twyford, Jr.
NORTH CAROLINA		
Univ. of North Carolina	*A Study to Determine Specific Sources of Resistance to Use of Audio-Visual Materials, by College and University Teachers, and the Development of Procedures for Overcoming the Barriers to Optimum Use*	K. M. McIntyre
OHIO		
Univ. of Akron	*Production and Use of Classroom on Film Versus Traditional Observations in Teacher Education*	William I. Painter
Ohio State Univ.	*Experimental Development of a Mobile Laboratory of New Media of Instruction for Use in the In-Service Education of Teachers of Mathematics and Science*	John Richardson
Ohio State Univ.	*Testing the Effectiveness of Two-Purpose Television Programs to Both Teacher and Pupil Learning in Elementary Science*	Alexander Frazier
OKLAHOMA		
Univ. of Oklahoma	*An Experiment in Basic Teacher Training Courses in Which Selected Audio-Visual Media Are Substituted for Actual Classroom Observation*	W. R. Fulton Omer J. Rupiper
Univ. of Oklahoma	*A Study of the Relative Effectiveness of Selected Approaches to the In-Service Education of Teachers in the Utilization of In-School Radio and Television Broadcasts*	Jesse Burkett

OREGON

Oregon State System of Higher Education	*An Experiment in the Use of Educational Broadcasting to Meet Growing Needs of the Junior College Program for the Youth of Oregon*	James M. Morris
Oregon College of Education	*A Study of the Effectiveness of Audio-Visual Teaching Materials When Prepared According to the Principles of Motivational Research*	Walter E. Snyder
Univ. of Oregon	*A Study of the Resistance to Television for Educational Purposes: Its Nature, Purpose, and Control*	Lionel Wishneff

PENNSYLVANIA

Pennsylvania State Univ.	*A Study of Patterns for Improving Teacher Education in the Uses of Audio-Visual Materials, and Effects Upon Pupil Learning of Optimal Teacher Use*	G. M. Torkelson
Pennsylvania State Univ.	*Measuring the Effectiveness of Documentary Sound-Film as a Supplement to Teaching Methods to College Students Preparing to Teach in Secondary Schools*	Robert B. Patrick
Pennsylvania State Univ.	*An Investigation of the Improvement of Informational Motion Pictures and Derivation of Principles Relating to the Effectiveness of These Media*	A. W. VanderMeer
Pennsylvania State Univ.	*An Investigation of the Improvement of Informational Filmstrips and the Derivation of Principles Relating to the Effectiveness of These Media*	A. W. VanderMeer
Pennsylvania State Univ.	*An Experimental Project for Appraising the Effectiveness of Televised Series on Reading Instruction Developed Through the Involvement of Teachers and Parents*	Lyman C. Hunt, Jr.
Drexel Institute of Technology	*Magnetic Recording and Visual Displays as Aids in Teaching Introductory Psychology to College Students*	Roland E. Johnston, Jr.

Metropolitan Pittsburgh Educational Television Stations	*Stimulating Pupil Participation in the Learning Process by Techniques of Suspense, Anticipation, and Competition in Television Instruction*	Arthur Lumsdaine
American Institute for Research	*Increased Learning from TV Courses by Use of Integrated Self-Scoring Instructional Quiz Materials and "Practice Machines"*	Arthur Lumsdaine
TEXAS		
Univ. of Houston	*An Experiment with the Use of a Video Tape Recorder in a Program Designed to Improve College Level Teaching Techniques*	Richard I. Evans
Baylor Medical College	*Teaching Human Physiology via a Data Broadcast System*	William Spencer
Univ. of Texas	*Experimentation in the Adaptation of the Vu-Graph Overhead Projector, Utilizing 200 Transparencies and 800 Overlays in Teaching Engineering and Descriptive Geometry Curricula*	Clayton W. Chance
Univ. of Houston	*The Effectiveness of Teaching High School Physics by Television, as Determined by Certain Varying Conditions*	Lester Richardson
UTAH		
Univ. of Utah and Salt Lake City Public Schools	*Challenging Superior Elementary Grade Students Through a Study of Russian via Television*	Keith M. Engar
WASHINGTON		
Univ. of Washington	*A Comparative Evaluation of the Use of Two Modern Methods —Audio-Visual and Dialogue— for Teaching a Spoken Language*	Victor E. Hanzeli
WISCONSIN		
Univ. of Wisconsin	*An Investigation and Evaluation of More Efficient Ways of Appraising Teachers in Training and in Service of Ways of Improving Their Day-to-Day Classroom Learning Activities and Procedures, Through the Uses of Audio-Visual Media*	Walter A. Wittich

SUMMARY OF DISSEMINATION ACTIVITIES BEING SUPPORTED UNDER TITLE VII, PUBLIC LAW 85-864

State and Institution	Project Title	Principal Investigator
CALIFORNIA		
Institute for Communication Research, Stanford Univ.	*Education and the New Media (A Series of "Growing Edge" Conferences and a Summary Study)*	Wilbur Schramm
DISTRICT OF COLUMBIA		
Association for Supervision and Curriculum Development	*A Theoretical Framework for the Development and Utilization of Instructional Materials*	Rodney Tillman
National Academy of Sciences	*Fundamental Process in Education (A Summer Study)*	R. M. Whaley
National Education Association (DAVI)	*A Pilot Project Involving a Regional Conference and Workshop Demonstrations of Educational Use of the New Media*	Anna Hyer Rodney Tillman
Visual Aids Branch, Div. of General Services, Dept. of HEW	*A Four-Part Program of New Educational Media Exhibits*	Douglass Hayes
ILLINOIS		
National Association of Educational Broadcasters	*The Feasibility and Role of State and Regional Activities in Educational Broadcasting*	Harry Skornia
INDIANA		
Indiana Univ.	*A Study of Public School Audio-Visual Budgets*	K. C. Rugg
Indiana Univ.	*A Study to Determine a Feasible Method of Establishing Bibliographic Control of Educational Audio-Visual Materials for the Purpose of Informing Teachers Concerning Available Materials and Their Educational Utility*	Margaret Rufsvold Carolyn Guss
MARYLAND		
Board of Education of Washington County	*A Survey of Television Equipment and Facilities Used for Purposes of Instruction by Public Schools, Colleges, and Universities*	John Brugger

MICHIGAN		
National Educational Television and Radio Center	*A Proposal for the Planning and Production of Filmed Reports of Teaching Practices in the Use of New Media for Instructional Purposes in the Fields of Modern Foreign Languages, Mathematics, and General Science*	Robert B. Hudson
NEBRASKA		
North Central Association of Colleges and Secondary Schools	*A Seminar for the Identification and Dissemination of Effective Principles and Practices in the Use of Television for Educational Purposes*	Donald G. Emery
NEW YORK		
Columbia Univ.	*A Feasibility Study Regarding the Establishment of a New Educational Media Research Information Center*	Maurice F. Tauber Oliver L. Lilley
Modern Language Association	*Language Materials List for Use in Improved Foreign Language Teaching in Public Elementary and Secondary Schools*	George W. Stone, Jr.

RESEARCH ABSTRACTS

TELEVISION

SEIBERT, W. F. *An Evaluation of Televised Instruction in College English Composition.* TVPR Report No. 5. Audio-Visual Center, Purdue University, Lafayette, Indiana. July 1958. 35 p.

Purpose: To determine whether the available facilities and personnel can be as effectively utilized in a program of televised college English composition instruction as they can be with normal instructional procedures.

Procedure: An experimental group of 82 students in college English attended three 50-minute class meetings per week for a semester. Two of the three sessions were televised. A control group of 72 students was taught by four other instructors. Achievement was measured by grades on 12 themes; scores on tests of grammar, punctuation, diction, and spelling; and five subtests of the *Purdue English Training Test.*

Results: The results suggested that this instruction is not readily adapted to television. Other research has arrived at the same conclusion. There were wide attitude variations but the average attitude was about neutral. Participation in the television lessons did not change student attitudes toward television classes. The attitude was unrelated to course achievement. Recommendations are given for a more definitive experiment.—*L. Twyford*

SEIBERT, W. F. *An Evaluation of Televised Instruction in College Freshman Mathematics.* TVPR Report No. 6. Audio-Visual Center, Purdue University, Lafayette, Indiana. July 1958. 16 p.

Purpose: To study the effectiveness of televised college mathematics and the attitudes toward the instruction when half of each lesson is televised.

Procedure: A control group of 80 students was taught for a semester. An experimental group of 80 students was taught the same material 25 minutes by television, followed by a 25-minute discussion and practice session under the direction of a graduate assistant. Six tests were given during the semester. The *Purdue Instructional Television Attitude Scale* was administered at the end of the semester. The same instructor taught both experimental and control groups.

Results: Student achievement was essentially the same for experimental and control sections. An average attitude toward the instruction was obtained. There was some evidence that student achievement and attitudes toward televised instruction are unrelated. Competent students did not suffer from being assigned to a televised class. This study supplements a previous study titled "Teaching Calculus by Closed-Circuit Television" by John Dyer-Bennet, William R. Fuller, Warren F. Seibert, and Merrill E. Shanks in the *American Mathematics Monthly*, June-July 1958.—*L. Twyford*

SEIBERT, W. F. *Cost Estimates and Comparisons for Televised and Conventional Instruction.* TVPR Report No. 7. Audio-Visual Center, Purdue University, Lafayette, Indiana. November 1958. 14 p.

Purpose: To analyze available data on conventional and television costs of instruction and to prepare charts for several parameters.

Procedure: The basic unit of cost decided upon was the direct instructional cost per student per semester hour of credit. For televised instruction, costs were divided into instructor's salary, instructor release time, costs of establishing and operating facilities, and salaries of assistants. It was assumed that normal load is 12 hours, there are 30 students in a class, housing costs are identical, and standard graduate assistant charges are made. Charts were prepared for instructor salaries of $6000, $7500, and $9000, and for facility costs of $20 and $30 per hour of instruction.

Results: Estimated costs of instructing fewer than four student sections by means of television are higher than that of conventional instruction. Higher salaried instructors need teach fewer students to break even. An instructional cost advantage can be obtained by teaching 150 to 270 students. Six graphs are included.—*L. Twyford*

SEIBERT, W. F., and **HONIG, J. M.** *A Brief Study of Televised Laboratory Instruction.* TVPR Report No. 8. Purdue University, Lafayette, Indiana. February 1959. 28 p.

Purpose: Comparison of televised and conventional chemistry laboratory instruction for acquisition and retention of relevant knowledge and laboratory skills.

Procedure: Seventy subjects were assigned to five groups. The instruction consisted of two films and a lecture. It was presented to the television and the conventional groups. A third group received no instruction. Subjects were pretested, given an 18-item knowledge test, and a performance test. A retention test was given later.

Results: Considering several limitations of the study there is some evidence that televised chemistry laboratory instruction is as effective as regular instruction.—*L. Twyford*

MACOMBER, F. G., and **SIEGEL, LAURENCE.** *A Study of Load Credit for TV Teaching.* Experimental Study in Instructional Procedures. Miami University, Oxford, Ohio. October 1958. 6 p.

Purpose: The purpose of this study was to summarize current load practices at a number of colleges and universities offering television courses for credit, the teachers' reactions to these practices, their estimates of the amount of time reuired to teach a TV course, and their actual records of time expended in connection with several TV courses.

Procedure: A questionnaire concerning teaching load currently carried, load deemed desirable, and expenditure of time in connection with the TV course was mailed to a sample of college TV instructors. In addition, these instructors were requested to complete a sequence of 14 daily activity logs. Twenty-eight respondents completed the questionnaire and 19 kept all the daily logs.

Results: Only 3 of 18 closed-circuit teachers were relieved of other responsibilities before course presentation whereas 7 of the 10 open-circuit teachers got some relief. There was little correlation between the number of TV teaching hours and the teaching load. Closed-circuit teachers felt a TV course should count for a 70 percent credit the first year and 50 percent thereafter. Open-circuit teachers felt the credits should be 100 percent and 65 percent succeeding years. Teacher preparation time was 8 hours for a conventional 3-hour course, 15 hours for closed-circuit TV, and 35 hours for open-circuit TV. The logs confirmed the teachers' estimates. It was recommended that for the first year of teaching a course a closed-circuit TV course be counted as two regular courses and that an open-circuit course four or five regular courses. —*L. Twyford*

BEATTS, PATRICK M. *Report on Instructional Closed Circuit Television for 1957.* IBM, Poughkeepsie, New York. February 1, 1958. 72 p.

Purpose: To study the use of closed-circuit television in teaching IBM machines to Customer Engineering students. Investigation of teaching effectiveness, student and teacher acceptance, technical operating problems, student participation, use of teaching aids, applicable training areas, course shortening, lab instruction, extent of use, and cost figures.

Procedure: Student responses were kept on carefully designed questionnaires. Instructors received a questionnaire and their opinions were obtained. Grades were compared with previous records. The effect on course length and content was measured. The extent of its use and cost factors were summarized.

Results: Courses were taught effectively using television; students and teachers increasingly accepted it. Student participation was possible and effective. The quality of instruction and its preparation improved; the use of teaching aids and materials increased. Courses were shortened 10 to 15 percent. The effectiveness of lab time was greatly increased. TV facilitated realistic trouble shooting. It was recommended that its use be expanded to other educational areas.—*L. Twyford*

EDUCATIONAL TELEVISION AND RADIO CENTER. *Educational Television Program Survey.* Research Report No. 581. Educational Television and Radio Center, 2320 Washtenaw Avenue, Ann Arbor, Michigan. July 31, 1958. 13 p.

Purpose: The purpose of this survey was to measure the growth of and identify changes in programming as reported for the week of April 13-19, 1958.

Procedure: Twenty-seven television stations supplied annotated logs of their educational programs. These were summarized and reported.

Results: The average program hours per station was 38 and ranged from 12 to 80 per week. The total number of program hours per week increased from 645 in 1957 to 1027 in 1958. The use of kinescope recordings increased from 24 percent in 1957 to 32 percent in 1958. Live and film programming decreased. St. Louis and New Orleans used kinescopes almost exclusively and Pittsburgh used them about half the time. The percentage of Center programs decreased slightly. Enrichment programs decreased while teaching programs rose greatly. The number of hours devoted to credit courses nearly doubled. The largest categories of programs included children's programs—35.9 percent; science, industry, and mathematics—8.6 percent; music and dance—8.5 percent; credit telecourses—8.1 percent; and national and world affairs—6.4 percent.—*L. Twyford*

KANNER, JOSEPH H.; KATZ, SANFORD; and **GOLDSMITH, PETER B.** *Evaluation of "Intensive" Television for Teaching Basic Electricity.* Television in Army Training, Army Pictorial Center, 35-11 35th Avenue, Long Island City 1, New York. January 1958. 37 p.

Purpose: To compare the effect upon learning of 38 hours of continuous television training over a five-day period with that of regular instruction. An additional objective was to study minimal television presentations and to determine the amount of training required for personnel to teach extensive segments of subject matter over television.

Procedure: Sixty-two trainees studied basic electricity over closed-circuit television and a similar number had regular instruction. Ten written tests covered the 38 hours of instruction. A retention test was given a month later. The same materials and instructors were used for each method, and no attempt was made to modify the classroom instruction for television presentation.

Results: There were no consistent differences between effectiveness scores for television and regular instruction. Immediate test scores were higher for regular instruction than for "minimal" television instruction but were the same on retention tests. Aptitude level proved to be more important than the instructional medium in determining test performance. It was concluded that televised instruction can continue for 38 hours without any greater decline in learning than is produced by regular instruction. While "minimal" television

may be less effective immediately, it was recommended that it be used in emergency periods or for initiating television training programs. The important role played by aptitude suggested the need for improvement in trainee selection.—*L. Twyford*

WESTLEY, BRUCE H. *Attitudes Toward Educational Television.* Bulletin No. 10. University of Wisconsin Television Laboratory, 600 N. Park St., Madison, Wisconsin. July 31, 1958. 241 p.

Purpose: To define and measure attitudes toward educational television in Madison, Wisconsin, where Channel 21 had been offering daily educational broadcast service since 1953.

Procedure: The data are based on 799 interviews with adults sampled in the viewing area.

Results: Sixty-two percent of the respondents favored full operation of the station. They wanted "useful" programs in contrast to academic programs. A significant negative relationship was found between amount of TV viewing and educational TV viewing. Reasons for liking programs were most frequently given in terms of program quality or special interests of the viewer. There did not appear to be a widespread evaluation of educational TV as dull or monotonous. Respondents preferred cooking, sewing, and handicrafts in contrast to enriching cultural experiences. Social class appeared to be the best predictor of attitude.—*L. Twyford*

KLAPPER, HOPE LUNIN. *Closed-Circuit Television as a Medium of Instruction at New York University, 1956-1957.* A Report on New York University's Second Year of Experimentation with Television in College Classrooms. New York University, New York. 1958. 69 p.

Purpose: To determine whether English Composition could be taught as successfully by television as by conventional methods. Do audio and visual aids increase the effectiveness of television teaching? How are student's attitudes affected by televised instruction?

Procedure: Three studies were conducted in three courses: College Composition, Man's Cultural Heritage, and History of Civilization. Programs were staged under professional studio conditions although scripts were not used.

Results: Television instruction was as effective for teaching English Composition as conventional instruction. The teacher was found to be far more important in providing learning than the medium employed. Attention to the television lecture was not related to degree of achievement. Students developed a strongly favorable attitude toward instruction which only showed the lecturer and the blackboard. More strongly favorable attitudes were held toward highly visualized lessons, but more learning occurred from lessons that were not visualized. Students are not always interested in or favorably

disposed toward the introduction of audio and visual aids. Faculty members found the experience stimulating but time-consuming. The additional time required for preparation produced tensions.—*L. Twyford*

THROOP, JOSEPH F.; ASSINI, LEWIS T.; and BOGUSLAVSKY, GEORGE W. *The Effectiveness of Laboratory Instruction in Strength of Materials by Closed-Circuit Television.* Rensselaer Polytechnic Institute, Troy, New York. November 8, 1958. 41 p.

Purpose: To evaluate the effectiveness of televised instruction as compared with conventional laboratory instruction of 12 Strength of Materials Laboratory experiments.

Procedure: The attainment of 234 engineering students taught over closed-circuit television was compared with that of 199 comparable students taught conventionally. The analyzed data included quiz scores, term paper grades, examination marks, and course grades. A questionnaire reported student opinion. Two industrial camera chains and five 21-inch monitors were acquired. A split-screen technique was developed. Laboratory machines and instruments were modified for improved visibility. A 20-minute live blackboard presentation was followed by the televised experiment. The class and staff were in constant intercommunication. After the experiment the staff returned to the classroom to work with the students.

Results: The television method was as effective as the conventional method. Conventional instruction develops greater familiarization with machines. The television group favored television and thought it to be more efficient. Television instruction can be economically justified with 400 students each term. Its principal value is in making information, normally accessible to a few, available to many. Larger classrooms should be equipped for television.—*L. Twyford*

MARTIN, GAITHER LEE, and CRAM, DAVID D. *Instructional Television Pictorial Report Number 1.* Television Project Report from San Jose State College, San Jose, California. September 1958. 31 p.

Purpose: To explore the use of television in a wide variety of college instructional situations and to determine the techniques, personnel requirements, costs, and the technical and operational problems involved in its use.

Procedure: During early 1958 television equipment was installed for studio and mobile use. An instructional television studio was equipped to originate programs. A distribution system was installed on the campus and a cable connected to four high schools. Receivers were designed to specifications and were elevated by the use of special leg brackets. Telecasts from high schools were used in a teacher training program. Exploratory projects were

undertaken in direct teaching during the few months covered by this report. The instructional television services program is a part of the Division of Audio-Visual Services.

Results: Tentative results indicated that faculty members who used television became more favorable toward it. The attitude of the class reflected the attitude of the instructor. Two-hour sessions were too long. There was a marked reduction in the cost of direct teaching on repeated presentations. The short period of actual operation has not permitted an evaluation of effectiveness.—*L. Twyford*

RADIO AND TELEVISION

WESTLEY, BRUCE H., and **BARROW, LIONEL C.** *Exploring the News: A Comparative Study of the Teaching Effectiveness of Radio and Television.* Research Bulletin No. 12. University of Wisconsin Television Laboratory, 600 N. Park St., Madison 6, Wisconsin. May 1959. 107 p.

Purpose: To study the effectiveness of comparable radio and television versions of a background-of-the-news program series.

Procedure: Four 15-minute programs on the news were prepared in both radio and television versions. These included information on the Presidency, issues before the 85th Congress, the Fuchs expedition to the South Pole, and the Caribbean and Venezuela. 228 sixth-graders in four public schools received the programs. An analysis of variance was performed to test the significance of differences for media, intelligence, programs, and the discussion variable.

Results: The television version was significantly more effective than the radio version in transmitting factual information. Six weeks later the difference was no longer significant. Visualized themes came to mind more often than nonvisualized content. The middle-intelligence group did not learn significantly more from television. Verbal intelligence was more effective than nonverbal intelligence in predicting learning of factual information. 8315 words were used in the radio version in contrast to 7540 in the television version.—*L. Twyford*

STILL PICTURES

FERGUSON, MARIAN NELSON. "A Comparison of the Chain Associations of Nursery School and Kindergarten Children to Action-Picture Stimuli." *Speech Monographs* 24: 56-64; March 1957.

Purpose: To determine evidence of the development and the complexity of verbal behavior of kindergarten and first-grade children by studying the language responses of both groups to photographs depicting action.

Procedure: Sixty children selected on the basis of accessibility in the nursery school and in the kindergarten were evenly divided between the two classes. Since previous studies have shown no significant sex differences between boys and girls in free association to pictures, this factor was obviated. A previous study by Albright and Albright used pictures of a horse, bed, train, hand, table, house, book, spoon, dog, and boy. The Albright pictures were static. This experiment used still photographs of similar subjects showing action. Each child was presented each picture as part of a "word game." Thirty seconds were adequate for nearly all the chain responses to each picture stimulus.

Results: The responses were classified quantitatively and qualitatively. The average length response for each kindergarten subject on all 10 pictures was 135 words, whereas the nursery school average was only 113 words. The combined average was 124 words as compared with the combined average response of only 50 words in the Albright study (using nonaction still pictures). The action pictures elicited roughly twice as many responses as nonaction pictures. The qualitative analysis classified words according to their grammatical categories such as nouns, verbs, adjectives, and so forth. The only grammatical category that was significantly different at the 1 percent level between the kindergarten and nursery groups was that of nouns. Of the 314 different noun responses used by both groups, only 118 were contained in Thorndike's list of the first 1000 words. The author's possible explanation of this is that Thorndike's list is based on written language rather than spoken.

Greater use of nouns by the kindergarten group (significant at the 1 percent level) quite possibly could be explained, according to the experimenter, by greater attention paid to details of the picture by the older group. The action pictures also elicited a larger number of verbs than the pictures used in the Albright study. The author feels this may be due to the fact that action pictures tend to elicit more complements and longer phrasal responses, and longer phrases do necessarily contain more verbs per phrase. There was also a tendency toward complete sentences.

In evaluating the psycholinguistic findings, the author finds that children who use more nouns were prone to give "descriptive responses" to the pictures, while those who concerned themselves with only a few central objects in the picture tended to give immediate associations which went beyond the immediate picture stimuli or, in other words, were more imaginative. This perhaps represents a higher level of thought than the descriptive associations.—*Paul Wendt*

TRAINING AIDS

MERRILL, I. R. *Application of Profile Techniques for Training Aid Evaluation.* Technical Report NAVTRADEVCEN 602-11-1. U. S. Naval Training Devices Center, Port Washington, New York. January 6, 1959. 48 p.

Purpose: To apply the learning profile technique to training aid evaluation including synthetic training devices, visual training aids, audio-visual

training aids, and auditory training aids. Its practicability was to be investigated and a check made on its validity.

Procedure: 418 students rated instruction involving 86 different training aids. Each student turned a knob to indicate how much he felt he was learning. Electrical equipment summated the responses. Instructional content was recorded photographically and with a tape recorder. Learning was plotted against instructional time and sequences were visualized and related to peaks and valleys. A test was prepared for validating the profile. One set of profiles was made using summated responses of a continuous scale. The other set was plotted from individual responses in which the rater threw a switch to a *learn* or *not learn* position.

Results: Fourteen learning profiles and interpretations of the peaks and valleys were reported upon. The study demonstrated that graphic training aids such as transparencies and flat charts, when properly used, implement instruction. Major instructional points were represented by peaks on the *learn-not learn* profile. The profile was particularly sensitive to new information. In descending order learning occurred from (1) new information, (2) repetition and restatement by the instructor, (3) questions asked the class by the instructor, and (4) questions asked the instructor. Synthetic training devices exhibited a characteristic profile. The effect of most training aids appeared to be submerged within the instructional segment. The method of using the training aid did not appear to affect the profile shape. Under the conditions of an experiment which was to validate a profile, the subjects were unable to report accurately by means of the profile device their gain in learning as measured by the objective test.—*L. Twyford*

TEACHER TRAINING IN USE OF NEW MEDIA

ZIMMERMAN, HARRY. *An Evaluation of Pre-Service Audio-Visual Experiences in Selected Oklahoma Teacher Education Institutions Based on Reactions of Teachers and Supervisors.* Doctor's thesis. School of Education, University of Oklahoma, Norman, Oklahoma. 1958. 209 p. (Typewritten)

Purpose: This study was concerned with the evaluation of experiences provided pre-service teacher education students in developing audio-visual knowledges and competencies. It was designed to answer the following questions: (1) What audio-visual knowledges and competencies are needed when entering the teaching profession? (2) To what extent are these experiences offered in Oklahoma state-supported colleges and universities? (3) How well do graduates possess needed knowledges and competencies?

Procedure: A jury consisting of 36 members was selected. Each juror was asked to rate a series of characteristics concerning utilization of audio-visual materials in terms of their importance to a beginning teacher. Ratings thus obtained were used for establishing criteria and provided a basis for the development of a second and third questionnaire to determine: (1) extent

to which needed experiences were provided in selected colleges and universities and (2) extent to which 1956 teacher education graduates possessed needed knowledges and competencies.

Data received from 10 colleges and universities and from 216 graduates represented the total population as defined for the study.

The audio-visual characteristics in the questionnaire were grouped into seven major parts: (1) physical characteristics, (2) background knowledges, (3) educational value, (4) operation of equipment, (5) maintenance of equipment, (6) utilization, and (7) production, and were subdivided into 67 statements. An analysis of data pertinent to each item provided a basis for an evaluative statement concerning the related experience.

Results: Teacher graduates appeared weak in the degree of knowledge acquired in 60 of the characteristics examined and seemed to be strong in only seven characteristics. A majority of the institutions of higher learning offered opportunities to acquire adequate knowledges and competencies in audio-visual education. A larger number of graduates possessed knowledge of the theoretical concepts of utilization while fewer possessed competency in operation, maintenance, and production. In the majority of institutions planned experiences leading to acquisition of audio-visual knowledges and competencies were provided in a formal course which was offered on an elective or semi-elective basis.

These findings led to the following conclusions: (1) Correction of deficiencies in pre-service teacher preparation could improve greatly the extent of audio-visual knowledges and competencies possessed by practicing teachers. (2) Teacher education programs should require a course in audio-visual education or include planned experiences in all professional education courses. (3) A large number of employed teachers need in-service instruction in audio-visual education.

It was recommended that a basic course in audio-visual education should be required of all prospective teachers, or the professional sequence should be organized to include audio-visual experiences on an integrated basis. Audio-visual laboratories should be established which would provide prospective teachers opportunity to become competent in production of audio-visual materials and in the operation of equipment. Oklahoma institutions should cooperatively engage in the study of curricula changes which might well result in greater assurance that teacher education students receive needed audio-visual knowledges and competencies.

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